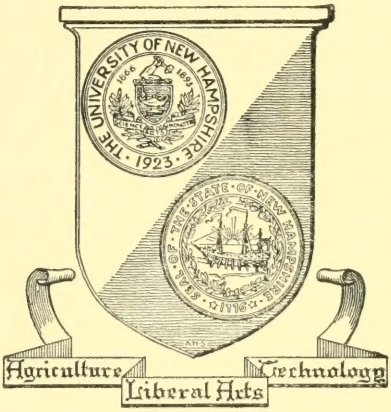
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OF

NEW HAMPSHIRE.

ANNUAL REPORTS,

1894.

VOL. III.

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1895.

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House Labor Committee, Legislature 1893.

(LABOR BUREAU CREATED MARCH 30, 1893.)

1. * Hubbard Pike, Stark.
2. † Henry E. Perry, Dover.
3. John P. Mullen, Manchester.
4. Zophar Willard, Harrisville.
5. Albert Collins, Grantham.
6. George H. McDuffee, Candia.
7. ‡ Augustus W. Gray, Bennington.
8. Oren N. Currier, Eaton.
9. Charles E. Frye, Laconia.
10. Albert G. Moulton, Lyman.
11. Thomas J. Courser, Webster.
12. Toussaint Ledoux, Nashua.
13. || George H. Wadleigh, Tilton.

* Chairman. Died Feb. 12, 1893.
† Clerk. Elected chairman to fill vacancy.
‡ Elected clerk to fill vacancy.
|| Appointed Feb. 16, 1893, to fill vacancy.

SECOND ANNUAL REPORT

OF THE

BUREAU OF LABOR

OF THE

STATE OF NEW HAMPSHIRE,

1894.

CONCORD:
EDWARD N. PEARSON, PUBLIC PRINTER.
1894.

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CONCORD, N. H.

LETTER OF TRANSMITTAL.

BUREAU OF LABOR,
CONCORD, N. H., Dec. 31, 1894.

TO HIS EXCELLENCY THE GOVERNOR:

In compliance with the provisions of chapter 48, Laws of 1893, I have the honor to transmit herewith the second annual report of the Bureau of Labor.

Very respectfully,
JOHN W. BOURLET,
Commissioner.

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INTRODUCTORY.

INTRODUCTORY.

An important step, and one in keeping with the progress of the times, was the creation, by the legislature of New Hampshire of 1893, of a Bureau of Labor. Similar offices now exist in thirty-two states of the Union, not including the United States Department of Labor at Washington, with that renowned statistician, Hon. Carroll D. Wright, a native of New Hampshire, at its head. Massachusetts was the first state to establish a bureau of labor, the office being created in June, 1869. The circumstances which led up to its creation are clearly outlined in an address delivered by Mr. Wright before the American Social Science Association at Saratoga, N. Y., September 3, 1888, in which he ably discussed the origin of labor bureaus in this country, their development and scope of work, etc., which was printed in the first report of this bureau. These need not be repeated here, farther than to say that while "the immediate stimulus to the creation of the bureau was political necessity or expediency," it was forced upon the legislature of Massachusetts by more or less constant agitation for years of the labor question by organized labor, and others interested in the industrial condition of the working people of that state. The same conditions are true of every state in which bureaus of labor have been established, and in only one instance has such an office been abolished. This was afterwards re-established, and the chain of bureaus remains unbroken to the present time.

Unlike other state offices, no special line of work is marked out for this bureau, the official head determining what can best be done to comply with the law under which it exists. The law defining the duties of the commissioner is very broad in scope,

and is substantially a copy of the original Massachusetts law, after which, in general terms, nearly all similar laws in other states have since been formulated.

The law authorizing the creation of the Bureau of Labor of New Hampshire was approved March 30, 1893, and after placing the appointing power in the hands of the governor and council, fixing the term of office and salary of the commissioner, and other details of organization, his duties are summed up in a single section, as follows:

Sec. 5. The duties of the commissioner shall be to collect, assort, arrange, and present, in annual reports, on or before the first day of January each year, statistical details relating to all departments of labor in the state of New Hampshire, especially in relation to the commercial, industrial, social, educational, and sanitary condition of the laboring classes, and the permanent prosperity of the productive industry of the state.

Thus outlined, it will be seen that the duties devolving upon the bureau are not only very important, but necessarily embrace a very wide range of subjects, covering the entire field of social science.

It is conceded by all bureau of labor officials that "the collection of facts, rather than the promulgation of theories," is the especial duty of all statisticians, and believing that the New Hampshire Bureau of Labor was created primarily in the interest of the laboring classes, an investigation of the general condition of workingmen engaged in the building trades was determined upon, and the result of the investigation, together with other interesting data, is incorporated in the first report of the bureau. With little or no experience in statistical work, and the brief time given to the duty of collecting material for the report, the results were necessarily crude; yet withal, a large amount of statistical information of a valuable character was secured regarding wage-earners engaged in the building industries, and the general conditions surrounding their every day life.

LABOR ORGANIZATIONS IN NEW HAMPSHIRE.

The present report of the bureau covers a similar field of inquiry, modified and enlarged, and the results are much more

satisfactory. The first part of the work is devoted to a brief review of the labor movement, and to labor organizations in New Hampshire, which, although comprising in their membership a small percentage of the working people of the state, are sufficiently numerous to exert quite an influence in industrial affairs. There can be no question as to the right of labor to organize for its own protection, and when guided by men of clear ideas and sound judgment, labor organizations will command—yea, do command—the respect and esteem of the general public. Capital combines for protection; why not labor, which very much more needs the stimulating influences of combined effort to protect its interests?

No one can read the preambles and extracts from the laws of the labor organizations represented in our state, without being forcibly impressed with the honesty and soundness of their principles, and the righteousness of their cause. Governed by high-minded men, men who recognize the right of capital as well as of labor, men knowing the interests of both are reciprocal and that neither can flourish without the other, men who are willing to pacify and conciliate, rather than aggravate, every discordant element or petty trouble that may arise, labor organizations can do much to ameliorate and advance the general condition of their members, and, indirectly, the entire working population, and at the same time command the respectful consideration of all classes of people. On the other hand, governed, as some of them are, by hot-headed fanatics, men who are more interested in their own self-aggrandizement and pecuniary interests than the interests of those who have unwisely placed them in authority, men who disregard the common rights of all men, and hesitate not to incite to acts of lawlessness and violence, agitators, not workers, labor organizations become their own worst enemies, destroying the confidence of all fair-minded men in them, and injuring the cause of honest labor beyond hope of immediate recovery. Fortunately, but few, if any, of this class are represented in our state. Although characterized by zealousness, the leaders who have labor's interests in New Hampshire nearest at heart, generally temper their zeal with good judgment and sound common sense, and counsel discreet and wise action in all labor matters.

The total number of labor organizations in the state reporting to the bureau is 58, having a total membership of 3,294, 314 of whom are females. The oldest organization is Tahanto Division No. 335, B. of L. E., Concord, organized August 17, 1864, and the next oldest the Concord Branch of Granite Cutters, organized March 10, 1877. The latter is the strongest body in the state, having 367 members. The years 1890 and 1894 mark the greatest progress in the growth of labor unions in this state, the number organized in those years being twelve and eleven respectively. Manchester and Concord take the lead in number of labor organizations, each having fourteen. A tabulated statement of the labor organizations in the state, with location, date instituted, number of members, etc., and recapitulation, is found on pages 94, 95, and 96.

FINANCIAL STATISTICS.

The financial condition of the towns and cities is as much a matter of public concern as any other field of inquiry, and, while the information is found in the annual reports published each year, they have never been brought together before for intelligible and convenient reference. Much time was spent in their preparation, and they form a valuable feature of this report.

ABSTRACT OF TOWN STATISTICS.

No less interesting is the abstract of town statistics covering every town and municipality in the state. The information presented gives in brief the location of each town in its respective county; principal railroad stations; line of railroad on which located; banking town; population for 1880 and 1890; number of ratable polls; assessed valuation of land and buildings, mills and machinery, etc.; valuation of assessed live stock and total assessed valuation; taxes assessed; rate of taxation on $100; net debt or surplus; principal industries; marriages; births and deaths by sexes; death rate per 1,000; number of public and graded schools; number of scholars and average daily attendance; total school revenue; number of libraries with number of volumes; annual library appropriation, and

much other interesting data compiled from the latest obtainable sources and arranged in as compact form as possible.

WAGE-EARNERS' STATISTICS.

The leading feature of the work of the bureau for the year 1894 is shown in the pages covering the individual reports from wage-earners. Reports were received from over seven hundred persons, employed in thirty-two trades or occupations, and the summaries and analysis show them to be surrounded with as favorable conditions and to be as fairly compensated for their labor, all things considered, as in any state in the country. The reports do not cover factory employés, and hence they represent American born people largely, who undoubtedly receive better wages and are surrounded with more comforts than their foreign born neighbors. As might be expected wages were reduced in nearly all trades, owing to the financial depression through which we are passing, and in only one instance was an increase in wages reported. Many own houses free from incumbrance, and those occupying tenements are able to pay a fair rental and live comfortably. As an evidence of the generally thrifty condition of the laboring classes represented in this report, it is only necessary to allude to the fact that 48 per cent. have savings bank accounts, and that 43 per cent. saved money the past year. More than half take books from public libraries, and 64 per cent. belong to fraternal organizations, which tend to elevate their social condition and secure to them and their families care and assistance in time of need and affliction.

Many availed themselves of the privilege of giving expression to their views upon various topics of interest to the laboring classes, a portion of which find a place in this report following the analysis. These opinions show them to be thoroughly alive to the issues of the hour, having in view, although sometimes expressed in radical language, the improvement of the conditions that surround them, and the general uplifting of the entire working population to a higher plane of life. These are certainly worthy motives, and the state should take cognizance of the evils surrounding our industrial system, and render the laboring

classes, who are the foundation of its prosperity and progress, every assistance possible compatible with justice and right, by the enactment of wise and wholesome labor laws. Something has been done in this direction in the past, but more can well be done in the future.

TEMPORARY AID TO UNEMPLOYED.

New Hampshire is still suffering from the effects of the disastrous industrial depression prevalent throughout the country, but its people are fortunate in being able to withstand the withering blight of business stagnation and its attendant consequences without serious inconvenience. Short hours, and in some instances a complete closing up of factories and workshops, means a curtailment of wages to working men, but nowhere in our state has great suffering been experienced as the result, and rarely has extraordinary means been resorted to by towns and cities to provide work for the unemployed or to relieve existing distress. An investigation covering the winter of 1893–'94, which forms a chapter of this report, shows a comparatively small amount paid for temporary relief over and above the winter before. Manchester authorized a loan of $25,000 to provide work for the unemployed in that city, but in no other locality was an especial appropriation made for that purpose. In only two cities did the amount expended for relief exceed $1,000 more than was paid the previous winter, and in but five places did the sum exceed $500. The comments of selectmen and city clerks show that work was to be had a portion of the time at least, throughout the winter, and but little suffering from want was experienced by our people.

STRIKES AND LOCKOUTS.

The year 1894 witnessed strikes and labor troubles in many sections of the country, notably at Chicago, where several lives were sacrificed and hundreds of thousands of dollars worth of property were destroyed, necessitating the presence of state and United States troops to restore order. The importance of

the strike attracted the attention of congress, which at the suggestion of the president appointed a commission to examine the causes which led up to it, the conditions accompanying the same, and the best means of their adjustment, etc. This commission, of which Hon. Carroll D. Wright, commissioner United States Department of Labor, was chairman, made a thorough investigation, covering every phase of the trouble, and its results and conclusions were subsequently published and presented to congress. The commission was in session thirteen days, and examined over a hundred witnesses, their testimony forming a very interesting feature of the report. Included, also, is an interesting description of the rise and development of the Pullman Palace Car Company, among the employés of which the trouble originated which culminated in the great strike, and the American Railway Union and General Managers' Association, the principal contending elements in the struggle.

The strike and its results, briefly stated, and some of the conclusions and recommendations are herewith given. They form an important chapter in the industrial literature of the times, and are worthy of the earnest consideration of all classes of citizens, capitalist and workingmen alike.

According to the testimony, the railroads lost in property destroyed, hire of United States deputy marshals, and other incidental expenses, at least $685,308. The loss of earnings of these roads is estimated at $4,672,916. Some 3,100 employés at Pullman lost in wages, as estimated, at least $350,000. About 100,000 employés upon the 24 railroads centering at Chicago, all of which were more or less involved in the strike, lost in wages, as estimated, at least $1,389,143. Many of these employés are still adrift and losing wages.

During the strike the fatalities, arrests, indictments, and dismissals of charges for strike offences in Chicago and vicinity were as follows:

Number shot and fatally wounded,	12
Number arrested by the police,	575
Number arrested under United States statutes and against whom indictments were found,	71
Number arrested against whom indictments were not found,	119

The arrests made by the police were for murder, arson, burglary, assault, intimidation, riot, inciting to riot, and lesser crimes. The cases passed upon by the special United States grand jury related to

obstruction of the mail, conspiracy to commit offences against the United States, conspiracy in restraint of trade or commerce among the several states, and conspiracy to injure, oppress, threaten, or intimidate citizens in the free exercise and enjoyment of their rights and privileges under the constitution and laws of the United States, all forbidden by law. Several indictments were found against Eugene V. Debs, George W. Howard, L. W. Rogers, and Sylvester Keliher, officers of the American Railway Union, under different statutes.

For the protection of city, state, and federal property, for the suppression of crime and the preservation of order, the city, county, state, and federal forces were utilized as shown in the following statement:

From July 3 to July 10 the number of United States troops sent to and used in Chicago to protect the United States mail service and federal buildings, and to sustain the execution of the orders of the United States courts, was	1,936
Between July 6 and July 11 the state militia was ordered on duty at Chicago, and remained so long as needed, to the number of about	4,000
Extra deputy marshals, about	5,000
Extra deputy sheriffs,	250
Police force of Chicago,	3,000
Total,	14,186

From the testimony given it is fair to conclude that strikers were concerned in the outrages against law and order, although the number was undoubtedly small as compared with the whole number out. The strikers' experience and training were to be seen in the spiking and misplacing of switches, removing rails, crippling of interlocking systems, the detaching, side tracking and derailing of cars and engines, placing of coupling pins in engine machinery, blockading tracks with cars, and attempts to detach and run in mail cars. The commission is of opinion that offences of this character, as well as considerable threatening and intimidation of those taking strikers' places, were committed or instigated by strikers.

The mobs that took possession of railroad yards, tracks, and crossings after July 3, and that stoned, tipped over, burned, and destroyed cars and stole their contents, were, by general concurrence in the testimony, composed generally of hoodlums, women, a low class of foreigners, and recruits from the criminal classes. Few strikers were recognized or arrested in these mobs, which were without leadership, and seemed simply bent upon plunder and destruction. They gathered wherever opportunity offered for their dastardly work, and, as a rule, broke and melted away when force faced them. In the view that this railroad strike was wrong; that such mobs are well known to be incidental to strikes, and are thereby given an excuse and incentive to gather and to commit crime, the responsibility rests largely with the

American Railway Union; otherwise that association, its leaders, and a very large majority of the railroad men on strike are not shown to have had any connection therewith.

In its conclusions and recommendations the commission says:

It is encouraging to find general concurrence, even among labor leaders, in condemning strikes, boycotts, and lockouts as barbarisms unfit for the intelligence of this age, and, as economically considered, very injurious and destructive forces. Whether won or lost is broadly immaterial. They are war—internecine war—and call for progress to a higher plane of education and intelligence in adjusting the relations of capital and labor. These barbarisms waste the products of both capital and labor, defy law and order, disturb society, intimidate capital, convert industrial paths where there ought to be plenty into highways of poverty and crime, bear as their fruit the arrogant flush of victory and the humiliating sting of defeat, and lead to preparations for greater and more destructive conflicts. Since nations have grown to the wisdom of avoiding disputes by conciliation, and even of settling them by arbitration, why should capital and labor in their dependence upon each other persist in cutting each other's throats as a settlement of differences? Official reports show that much progress has been made in the more sane direction of conciliation and arbitration even in America. Abroad they are in advance of us in this policy.

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A broad range of remedies is presented to the commission as to the best means of adjusting these controversies, such as government control or ownership of railroads; compulsory arbitration; licensing of employés; the single-tax theory; restriction of immigration and exclusion of pauper labor; protection of American industries; monetary legislation; suppression of trusts and combinations; written contracts requiring due notice of discharge by employers and of leaving service by employés; United States labor commission to investigate and fix hours of labor, rates of wages, etc.; a fixed labor unit; authority to courts to settle these questions; insurance departments and pensioning of employés; fixing hours of labor and minimum rates of wages by statute; change in law of liability of master to servant; and various suggestions for relief, outside of any legislative action, thorough educational methods tending to the inculcation of mutual forbearance and just consideration of each other's rights in the premises.

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In solving these questions, corporations seldom aid the efforts of the people or their legislators. Fear of change and the threatened loss of some power invariably make them obstructionists. They do not desire to be dealt with by any legislation; they simply want to be let alone, confident in their ability to protect themselves. Whatever is right to

be done by statutes must be done by the people for their own protection, and to meet the just demand that railroad labor shall have public and impartial hearing of all grievances.

The commission does not pretend to present a specific solution of these questions. Its effort is simply to present the facts; to point out that the relations of capital and labor are so disturbed as to urgently demand the attention of all thinking and patriotic citizens; to suggest a line of search for practical remedial legislation which may be followed with safety, and, finally, to urge and invite labor and railroads to hearty coöperation with the government and the people in efforts to substitute law and reason in labor disputes for the dangers, sufferings, uncertainties, and wide-spread calamities incident to strikes, boycotts, and lockouts.

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As authorized by statute, the commission has decided upon certain recommendations and certain suggestions, growing out of its study of the Chicago strike and boycott. These recommendations and suggestions are upon three lines: First, for Congressional action; second, for state action; and third, for the action of corporations and labor organizations. It readily sees the impropriety to a certain extent of making any recommendation for state action, yet feels it a duty, as a result of its investigations, to make such suggestions as will enable citizens interested in state legislation to benefit by its experience, and also to make such suggestions to corporations and labor organizations as shall tend to harmonize some of the existing difficulties. The commission therefore recommends:

I.

(1) That there be a permanent United States strike commission of three members, with duties and powers of investigation and recommendations as to disputes between railroads and their employés similar to those vested in the Interstate Commerce Commission as to rates, etc.

(2) That chapter 567 of the United States Statutes of 1885–'86 be amended so as to require national trades unions to provide in their articles of incorporation, and in their constitutions, rules, and by-laws, that a member shall cease to be such and forfeit all rights and privileges conferred on him by law as such by participating in or by instigating force or violence against persons or property during strikes or boycotts, or by seeking to prevent others from working through violence, threats, or intimidations; also, that members shall be no more personally liable for corporate acts than are stockholders in corporations.

(3) The commission does not feel warranted, with the study it has been able to give to the subject, to recommend positively the establishment of a license system by which all the higher employés or others of railroads engaged in interstate commerce should be licensed after due and proper examination, but it would recommend, and most urgently,

that this subject be carefully and fully considered by the proper committee of congress.

II.

(1) The commission would suggest the consideration by the states of the adoption of some system of conciliation and arbitration like that, for instance, in use in the commonwealth of Massachusetts. That system might be reenforced by additional provisions giving the board of arbitration more power to investigate all strikes, whether requested so to do or not, and the question might be considered as to giving labor organizations a standing before the law, as heretofore suggested for national trade unions.

(2) Contracts requiring men to agree not to join labor organizations or to leave them, as conditions of employment, should be made illegal, as is already done in some of our states.

III.

(1) The commission urges employers to recognize labor organizations; that such organizations be dealt with through representatives, with special reference to conciliation and arbitration when difficulties are threatened or arise. It is satisfied that employers should come in closer touch with labor and should recognize that, while the interests of labor and capital are not identical, they are reciprocal.

(2) The commission is satisfied that if employers everywhere will endeavor to act in concert with labor ; that if, when wages can be raised under economic conditions they be raised voluntarily, and that if when there are reductions, reasons be given for the reduction, much friction can be avoided. It is also satisfied that if employers will consider employés as thoroughly essential to industrial success as capital, and thus take labor into consultation at proper times, much of the severity of strikes can be tempered and their number reduced.

The discordant scenes of strife between capital and labor elsewhere finds no counterpart in New Hampshire. In few states is there less friction between employers and employés. Labor is respected and fairly paid, and but little ill feeling is manifested in the few minor labor troubles that occasionally arise. During 1894 fourteen strikes and two lockouts occurred in the state, ten of which were of shoe workers. Conway, Dover, Farmington, Laconia, Londonderry, Manchester, Northwood, Pittsfield, Rochester, Somersworth, Suncook, and Wolfeborough were the scenes of trouble, in some instances resulting successfully to employers, and in others to employés.

The strike in Suncook necessitated the closing of the cotton

mills for a short time, throwing nearly 1,500 people out of employment, which was the largest number involved in any labor trouble in the state during the year.

Various were the causes that led to differences, but generally strikes were made against a reduction in wages. Numerous causes have led to a necessitated reduction in cost of production, and invariably labor is the first to suffer the penalty. Frequently, however, advantage is taken of existing circumstances to reduce wages when unnecessary to do so, oftentimes causing needless trouble. If more confidence was had in employés, and a proper understanding of existing conditions could be had between employers and their workmen, much unnecessary strife would be avoided, and harmony would exist where now uneasiness and ill-feeling prevails. Capital and labor should not be antagonistic, for their interests are at least reciprocal, if not identical.

STATISTICS OF MANUFACTURES.

The census of 1890 shows that there are 3,229 manufacturing establishments in New Hampshire, which include all reporting an output of $500 and upwards yearly. These represent a capital of $79,375,160, the employment of 63,361 people, to whom are paid $24,248,054 in wages, and an output of $85,770,549. Compared with the census of 1880 there was a material increase, the smallest percentage gain being in number of establishments, which was only 1½ per cent. In amount of capital invested there was an increase of 55+ per cent.; in number of employés, 23+ per cent.; in amount of wages paid, from 48+ to 63+ per cent.; in value of material used, 9+ per cent.; in value of products, 15+ per cent. A noteworthy fact, and a very gratifying one, is the showing made relative to the number of children employed, which shows a decrease in the decade of 49+ per cent., which was undoubtedly brought about by the enactment of wise labor laws. At no time within half a century were so few children (under fifteen) employed in manufacturing establishments in the state as at present.

A comparison for the census years 1850, 1860, 1870, 1880,

1890, given under the above head in this report shows a very gratifying increase in the industrial progress of the state, and also shows a tendency to concentration in business, so generally prevalent throughout the country. The number of manufacturing establishments in 1890 in excess of 1850 shows an increase of little more than one half (0.56) of one per cent., while the increase in capital invested is over 335 per cent. Since 1870 the amount of capital invested has more than doubled, while the number of establishments shows a considerable decrease.

Among the 165 cities embraced in the census consideration of the cities having a population of 20,000 and upwards, is Manchester, which makes a remarkable showing. It included within its limits in 1890 over 15,000 employés in its manufacturing establishments, almost equally divided as to sex, who were paid nearly $6,000,000 in wages. The amount of capital approximated nearly $22,500,000, and the value of product was $20,000,000. Compared with the census of 1880, this was an increase of 48+ per cent. in capital invested; 41+ per cent. in number of employés; 70+ per cent. in wages paid, and 42+ per cent. in value of product. At a proportionate ratio this increase is augmented to a considerable extent at the present time. Compared with the entire state, nearly twenty-five per cent. of its total manufacturing interests is represented in the Queen city.

A feature of the work of the bureau the past year was the collection of statistics of manufactures. Although carried on under very discouraging circumstances, owing to refusal and indifference on the one hand and no law requiring that information shall be given on the other, sufficient returns were received to make a very creditable and interesting showing. Reports were received from 299 establishments having a capital of over $18,000,000, employing nearly 17,000 hands, who received rising $5,500,000 in wages, and produced an output valued at over $21,000,000. The cotton goods, boots and shoes, hosiery and knit goods, and lumber industries are the largest represented, and relatively in the order named. A perusal of the

tables brings out many interesting facts, the industries being classified so as to show the capital invested, cost of material, total wages paid, value of product, number male and female employés, highest and lowest weekly wages paid males and females, average number of days works were run, and average proportion of work done in each during the year.

Especially interesting is the showing of 166 establishments reporting in both the years 1893 and 1894, from which comparison has been made and tabulated, accompanied by a detailed analysis. These are classified in industries and show the capital invested, etc., as above indicated, in each year, with differences in amount and percentages of increase and decrease. Few industries show an increase in production, and combined they show a decrease in all the principal details of manufacturing. The percentage decrease in capital invested in the establishments reporting both years, was 3.20 per cent.; in value of material used, 4.85 per cent.; in value of product, 13.85 per cent.; in number of male employés, 5.99 per cent.; female employés, 4.56 per cent.; in wages paid, 9.87 per cent.; in average yearly wages earned by employés, 4.69 per cent.; in average number of days works were in operation, 1.46 per cent.; in average proportion of business done, 3.09 per cent. The comparative showing made undoubtedly accurately reflects the industrial conditions prevailing in the state at the present time.

RECOMMENDATIONS.

It is a well-settled fact among labor bureau officials that the voluntary blank system of collecting statistics is unsatisfactory in results. Prejudice, neglect, indifference, and ignorance combine to make the percentage of returns very meagre in comparison with the number of schedules asking for information scattered broadcast throughout the state through the mails. The first three causes named might possibly be overcome to a considerable degree, if the law creating the bureau also required that information asked for by the commissioner should be furnished, and provided a penalty for neglect or refusal to do so, but such is not the case.

This unfortunate position in which the bureau finds itself greatly retards its efficiency. No one is under any obligation whatever to furnish information of any character, and to be reminded of it, oftentimes in language more forcible than elegant, if any reply is made, is not an infrequent experience. Assurances honestly given and faithfully kept, that the returns made will be considered strictly confidential, and that identity will in no way be revealed in the printed reports, yields no increase in statistical results.

No other state office, of which statistical inquiry is a feature, labors under such disadvantages. All are clothed with powers to not only ask for information desired, but are assured by law that such shall be given under penalties of more or less severity. The efficiency of the bureau should be strengthened by similar legislation in its behalf.

While on the one hand the law should require that the request of the bureau for information should be complied with, it should also throw around those giving such information the protection of a heavy penalty, by fine, imprisonment, or both, upon any official of the bureau who violates or betrays the trust confided in him by correspondents. Industrial statistics cannot be secured without this assurance, and the bureau officials, as well as those giving information, should be bound by equally as strong obligations.

To place the bureau upon an equal plane with other state bureaus of labor, and to increase its efficiency, we recommend (1) a liberal yearly specific appropriation; (2) a law requiring that industrial statistics from all sources deemed expedient shall be given, upon request in person or by circular, with proper penalties for neglect or refusal to furnish same; (3) permission to enter factories, workshops, or other places of business during working hours for inspection purposes; (4) that 2,500 copies of annual reports be printed; (5) a heavy penalty for violation of confidential relations with correspondents by officials of the bureau.

CONCLUSION.

Only those who have had similar experience can appreciate the difficulties encountered and the arduous labor involved in organizing and inaugurating the work of a bureau of statistics. The aid and encouragement extended by organized labor, manufacturers, and individual correspondents who kindly complied with the request of the bureau for information, and otherwise rendered it assistance, has, however, been a source of inspiration from which some good results have been attained, and is gratefully acknowledged and duly appreciated. The industrial welfare of a people, to which the efforts of the bureau are directed, is a worthy cause in which all classes of citizens, capital as well as labor, should be heartily in sympathy, for upon it depends the happiness and prosperity of the state and nation.

THE LABOR MOVEMENT.

THE LABOR MOVEMENT.

To trace the origin and progress of the labor movement from its earliest inception until the present time, it would be necessary to refer back into the dim past for many centuries: for labor organizations in some form or another have existed nearly as long as labor itself. T. V. Powderly says that "Trades unions flourished so long ago that no trace of their origin can be followed with any degree of accuracy."

The earliest record of organization is that of the guilds formed in the Middle Ages. Early in the Christian era, Theseus, the Athenian, separated the skilled and unskilled workmen, and in the early days of Greece certain trades were represented by organizations, some of which were accorded special privileges. In the early days of Rome the plebeians were divided into clubs. In the year 590 the Queen of Lombardy gave certain privileges to the stone cutters. The masons were undoubtedly organized early in the seventh century, for in 738 the monks of Lombardy became dissatisfied with their work, and endeavored to prevent them from working upon sacred structures. The guilds resisted the monks, and in the struggle that ensued, the guilds were victorious. This is undoubtedly one of the earliest victories for organized labor on record.

The weavers of Mayence organized a guild in 1099, the butchers of Ansberg in 1104, and the fishermen and weavers of Worms in 1105–1114. The Paris butchers established a guild in 1134, the bed-cover weavers at Cologne in 1149, and the shoemakers of Magdeburg in 1157. In 1162 there were five craft guilds in Halle, representing the shoemakers, bakers, butchers, smiths, and doublet weavers.

In 1180 there were fifteen craft guilds in London. In 1370 the Strasburg guilds had grown in strength and influence sufficient to receive a voice in the town councils, and the masons and stone cutters succeeded in forming an organization comprising the guilds of England, Germany, France, Spain, Portugal, Italy, Hungary, and the Netherlands.

John Simon Cameron, in his "Story of Labor," says:

"Guilds, or associations of individuals for a common purpose, are of immemorable antiquity. . . . In tracing their history we find the merchant guilds, the prototypes of modern corporations; the religious guilds, the prototypes of modern religious societies; the social guilds, the prototypes of Masonic, Odd Fellows, and kindred organizations; the craft guild, the predecessor of the modern trades unions; and finally, guilds of lawyers and guilds of literateurs and artists."

William Trant, in his prize essay on "Trades Unions," says:

"The noblest of all the guilds of the Middle Ages was undoubtedly that of the masons. This brotherhood rose from the circumstances in which the travelling builders of the Middle Ages found themselves placed. 'They were brought together from distant homes to be employed for a considerable time on such great works as on mediæval churches and cathedrals. Near the rising structure on which they were engaged it was necessary that they should provide for themselves a common shed or tabernacle.' This was the original masons' 'lodge.' Before all things it was necessary that masons should be 'free and accepted.' The entrance into this guild, as indeed into all others, was, in accordance with the spirit of the times, surrounded by mysterious rites and ceremonies, and all such societies had their peculiar lore and traditions. Their original intentions have long ago been disregarded. All that remains of the masons' guild is the now fashionable order of 'Freemasons,' and of the others the rich livery companies of London and the guilds of elsewhere, who now spend their dying moments, as they inaugurated their existence centuries ago, at dinner."

In England, during the latter part of the thirteenth century, the laboring people reached their highest degree of prosperity, some authors maintaining they were much better off then than now. In 1363 it is said that the prosperity of the peasantry was so great that an act was passed enjoining carters, ploughmen, and farm servants generally, not to eat or drink "excessively," or to wear any cloth except "blanket and russet wool of twelvepence," while domestic servants were declared to be entitled to only one meal a day of flesh and fish, and were to content themselves at other meals with "milk, butter, cheese, and such other victuals."

Dark days, however, followed this era of evident prosperity, and for several centuries and even up to the commencement of the present century, every means was taken to counteract the beneficial effects of a more civilized life and consequent enlightenment of the people. The governing powers seized every opportunity to crush laboring people, and during those years "a conspiracy concocted by the law, and carried out by parties interested in its success, was entered into to cheat the English workman of his wages, to tie him to the soil, to deprive him of age, and to degrade him into irreparable poverty." One of the first acts was the debasement of the coin of the realm by Henry VIII, so that its purchasing power fell to one third of its former value, thus greatly increasing the cost of living without a corresponding increase in wages. Other repressive measures were also adopted. The property of the guilds, which assisted the artisan in times of difficulty, was also confiscated, and the condition of the working people was reduced to almost the level of serfs.

To show what was thought of workingmen, and to force them into submission, an act was passed during the reign of Edward VI stipulating that "If a man refused to work for statute prices he was branded with a letter V, denoting vagabond, and reduced to slavery for two years. If he

attempted to escape from that condition, he was branded with an S, and became a slave for life; and if he objected to that state, he was hanged."

Notwithstanding these severities the spirit of unionism was not entirely crushed, as is shown by the fact that the preamble of an edict passed in 1548, set forth that "artificers, handicraftsmen, and laborers had made confederacies and promises, and have sworn mutual oaths not only that they should not meddle with one another's work, and perform and finish what another hath begun, but also to constitute and appoint how much they shall do in a day, and what hours and times they shall work, contrary to the laws and statutes of this realm, and to the great impoverishment of his majesty's subjects," and any one convicted for the third time of having joined such a combination suffered the penalty of having his ears cut off.

For many years and as late as the end of the last century, the farm laborer had no right to sell his labor in the best market, but was compelled to work for any employer in his parish who chose to demand his services at a price fixed by statute, and it was not until 1795 that a workman could legally travel in search of employment out of his own parish.

In 1779 "the condition of the miners of Scotland was literally one of serfdom. They were obliged to remain in the pit as long as the owner chose to keep them there, and they were actually sold as part of the capital invested in the work. If they took work elsewhere, their master could always have them fetched back and flogged as thieves for having robbed him of their labor."

As late as 1800, combinations of workingmen were prohibited by law, as they had been for two and a half centuries before. Notwithstanding adverse legislation through those long dreary years, labor organizations multiplied in number, and grew stronger in resource. After hundreds of years of depression, the light of hopeful day began to

dawn upon them, and out of darkness they sprang into the full glory of broad day, and the yoke of bondage was thrown off, and "life, liberty, and the pursuit of happiness" became theirs forever.

In 1871 the last of the early English laws against the rights of the workingmen of the nation was swept away, and trades unions became formally recognized. Within the few years intervening they have accomplished a great work, and have not only won a legal recognition, but have secured practical legislation "for the good of the working classes and the country, such as no other civilized country can show." Laws have been passed by which the condition of women and children, especially, has been greatly improved. Hours of labor have been shortened, and under the leadership of John Burns and other great labor reformers, the condition of the working people has been vastly improved in almost every direction, and the work is still being carried on to more glorious results.

Immediately following the removal of all legal restrictions against organizations, trades unions received a tremendous impetus, and men became identified with them by thousands. In fifteen years the membership had doubled, and in 1885 the various trade organizations in England numbered fifty-one, with a total membership of 545,260, and late reports show continued increase in numerical and financial strength.

The reports of English trades unions for 1892 show no less than 599 unions, 482 of which are registered and 117 unregistered. One hundred and five unions have branches or lodges, numbering in all 7,308, some of which are located in British colonies and a few in foreign countries, and having an aggregate membership of 1,237,367. The total income for 1892 was (reduced to dollars) $8,954,210, and the expenditures $8,826,930, the aggregate of balances in the possession of the unions at the end of the year being $9,220,745. Two hundred and ninety-eight societies, with a mem-

bership of 745,648, paid unemployed benefit to the amount of $1,934,865; 308 societies with 1,103,641 members, paid in dispute benefit $2,336,455; 193 unions, with 585,389 members, paid in sick allowances $1,073,065, and eighty-eight unions paid as accident benefit to disabled members $89,920. Superannuation allowances were paid by seventy-four societies with a membership of 433,004, to the amount of $532,760, while as a funeral benefit 317 societies with 894,697 members, paid $416,895. Other benefits and grants were paid by 423 societies, with 1,105,821 members, to the amount of $689,470, while working and other miscellaneous expenses totalled for 590 societies, $1,738,615.

Of the administration of the affairs of British trades unions, it is said that in their early struggles they were often controlled by ignorant men, governed by prejudice, and made many blunders, often advising strikes when they were not justified in so doing. But as years rolled on better and more wise counsel prevailed, and they assumed a higher standard of action. The education of the members concerning "the elements of trade, the profits and losses in it, and the conditions of its success," and many other economic questions, has been most beneficial.

In other countries as well as in England, the working people have organized to protect their own interests. In the large trade centres of France trade unions have long been established, but for many years were comparatively few in number. Possibly because of the fact that "there is an established system of arbitration for settling labor disputes, also a method of insurance, established by law, which pays moderate sums to employés in case of injury or sickness, or to their heirs in case of death," which, by the way, might be incorporated into the labor laws of this country with good results, it may have been heretofore considered there was less need of organization to protect the common cause of labor. Since 1884, however, unionism has spread over the entire country, and a million

people are now enrolled in the ranks of organized labor. To show the strength and influence of the labor unions in the Republic of France, and the trend of opinion upon social and economic questions, we quote from a recent abstract of the report upon the subject, made to the state department by F. B. Loomis, late United States consul at St. Etienne. Although possibly considered from a prejudicial standpoint, the facts presented are very interesting.

"The labor problem in France is practically the labor problem of Europe. The conditions which environ the working man and capitalist in this country obtain, with slight local modifications, in all the great industrial nations of Europe. Everywhere the laboring classes are restless, socialism of one sort or another is spreading, and capital is stern and apprehensive.

"There is much more discontent among the laboring classes in Europe than in America, on account of the overcrowded condition of the trades, and the impossibility of finding new fields of employment for the surplus workmen. French workmen have only possessed the right of organization since 1884, and they have now 1,250 trades unions, or workingmen's syndicates, as they are called. Organization is a mania for the moment, and every class of labor has its union. Even stablemen, tailors' apprentices, and waiters in the drinking saloons have their formal syndicates with pompous titles.

"The membership of the unions is not large, but is increasing all the while, and in case of serious or widespread labor troubles, could become easily enormous, for the organization is always ready, in 'working order,' and the process of absorption of new material would be rapid. These unions, established in all parts of the country, are practically united under a central labor bureau called the Bureau de Travail or Labor Exchange.

"The first Labor Exchange was founded in Paris in 1887, and its establishment having been effected by the socialist element in the local trades unions, its management fell into their hands. The avowed object of the exchange is to improve the relations between capital and labor, and to furnish a free intelligence office or employment bureau

for the members of the trades unions. Last year the Labor Exchange of Paris found situations for 29,000 workmen, and if its efforts were confined to this sort of endeavor all would be well; but, unfortunately, the managers of the exchange at Paris and elsewhere make no end of mischief. They assume to be authorized to settle disputes between employer and employé on terms satisfactory, not to the parties concerned, but to the socialist leaders at the exchange.

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"There are in the United States no institutions like the labor exchanges. They are municipal organizations, and the cities support them. They are, in fact, concessions to the Socialist party, which often dominates the city councils. In Paris the taxpayers were made to contribute $600,000 for the construction of the Labor Exchange, and in addition, they gave it $10,000 a year to meet its current expenses. Though the exchange is a municipal institution, it spurns the advice and suggestions of the municipality, yet the fear of the labor party is so great that no one dare question the way of its socialistic managers.

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"There are two tendencies noticeable in France now—one is the movement in the direction of state socialism; the other is the movement toward the solution of the labor question by coöperation and profit sharing. The advocates of state socialism are now proposing a scheme providing for the payment of pensions to all working people who shall have toiled a certain number of years. If this project is enacted into law, it will become an enormous burden, for one third of the pension fund in each case is to be contributed by the state and one third by the employer, and one third by the workman. The idea of civil pensions is firmly rooted in the French mind. Many of the large corporations give a small pension to all of their employés after a certain number of years. This is particularly true of railways and mining corporations.

"The real solution of the labor problem, and the only one which will not destroy industrial effort and ambition, is to be found in the adoption of the coöperative and profit-sharing principles. . . . . In nearly one hundred

industrial establishments in France profit sharing is in practical operation, and with satisfactory results.

"In the past forty years the condition of the working classes in France has undergone great and radical improvement. Between 1853 and 1885 there was an average increase of 67 per cent. in the wages paid to working people, but the starting point for the comparison in 1853 was very low. St. Etienne is a great industrial centre; it is the Pittsburg of France. There are many industries here, the leading ones being iron, coal, and the manufacture of firearms and ribbons. In spite of official statistics, a skilled workman here earns on an average less than $400 a year. In round figures, 1,800 francs is what an expert weaver, owning his own loom and furnishing his own power, earns.

"Unskilled labor is paid by the municipality fifty-eight cents a day. How can a man support a wife and three children when his total earnings for the year, assuming that he labors three hundred days, amount to $174? This is a reality thousands of men have to face in France and in Europe. The fact that socialism is spreading indicates that the spirit of discontent is growing among the working class. When one considers that in a population of 38,000,000 the number of persons engaged in agriculture, commerce, and other industries exceeds 30,000,000, and that there are no more than 2,500,000 of independent means, it is perhaps easy to see how the majority may get the impression that it is oppressed by a very small minority.

"The revolutionary and socialistic tendencies in France are, of course, a danger, but not as yet a grave one. The power of the socialists is not proportionate to the noise they make, and the weight of the conservative forces must be taken into account. As yet no very large number of farmers or farm laborers have gone into the labor unions. The farmer is, as a rule, unfriendly to social agitators. He has little to gain in listening to them. If the French farmer is as sturdy in his conservatism as he is supposed to be, his influence will be a potent one, for the agricultural lands of France are divided into 14,000,000 allotments, and the number of persons engaged in tilling them is 17,698,402, or nearly half the population of the country.

"There is another powerful barrier to the advance of the socialistic ideas, and that is the widespread and substantial solvency of the French people—a solvency due to

the general thrift of a universal genius for economy. There are in France more than 7,500,000 depositors in the savings banks, the hoarding of the lower, middle, and working classes. No effort is spared by the government to develop this source of thrift, and among many excellent measures adopted to encourage it, may be cited the practice of rewarding efficiency and diligence in the schools by crediting the scholar with a small sum in the savings bank, instead of giving him a book or some useless prize.

"The influence and place of French women must always be taken into account in any attempt to measure the forces of social movement. There is no other nation where women take so intelligent and active a part in business as they do in France. In the small shop-keeping class the women are the brains and life of the trade. The influence of the French women of the working class, and the weight of their good sense, is on the side of society as it exists to-day. When they change, the social revolution will be accomplished, or at least the old order will have changed.

"The French republic is now believed to be firmly established, and statesmen of the higher order, like M. Constans and M. Dupuy, indicate in their public utterances that in the future their business will be to grapple with the great social question embraced under the comprehensive phrase—the labor problem."

In Germany many of the labor organizations are modelled after the English plan of organization. Some are of a purely beneficial character with insurance features, paying sick and funeral benefits, and are assisted and encouraged by manufacturers and business men. Except possibly in the large manufacturing cities, strikes seldom occur, and the relations between employers and employés are generally friendly.

For many years, clubs for mutual aid and the relief of the sick have existed in Denmark, and since 1870 trades unions, including in their membership those working at the principal industries of the country, have flourished in the principal cities, and have succeeded in accomplishing much good for their members.

Trades unions have existed in Holland since 1866, but they are few in number, and some of them are of a purely social character. There has been very little conflict between capital and labor to disturb existing industrial conditions. There are a few labor organizations in Spain, and also in Switzerland, both of manufacturers and working people, but each are friendly to the other; and the fact that employers generally take more than a purely selfish interest in the welfare of their employés, accounts perhaps for their generally satisfied condition.

Labor organizations are numerous in Italy, but they exist principally to extend relief during sickness and when out of work, and but few strikes occur. In this, as well as in some other countries, there is a disposition to assist working people in time of trouble, some employers furnishing free medical treatment to their employés in times of sickness, and continuing their wages during illness. Such a spirit goes very far toward settling the differences between capital and labor, and establishing satisfactory relations between the two.

Organizations of working men known as "Artels" have been in existence in Russia for many years. As early as 1821 Peter the Great separated the working people into two classes or guilds, and in 1852 the old guild laws were so modified as to allow of the formation of the more modern trades associations, with "mutual assistance" as leading features. Nearly every important industry of the empire is represented in the "Artels," which still flourish.

Even in Japan, whose people have made immense strides toward modern civilization during the past few years, each trade has its own guild. These labor organizations have gained a strong foothold, and are organized for "the protection of mutual interests."

Guilds or labor organizations exist in India among the "sudra," or working caste, and through their efforts "wages are regulated, efforts to lessen competition are

made, and hours of labor are regulated with a view of giving employment to all." Apprentices are required to pay for instruction in the skilled trades, and the income derived from this and other sources is used in aiding deserving widows and orphans of deceased working men.

That trades unions or associations of laboring men existed in the United States in the early part of the seventeenth century is clearly evident, although this has been contradicted by some authorities. It has been claimed for years that the first strike in this country, known as the "sailors' strike," occurred in New York city in 1803, which may seem to give color to the contradiction; but there is indisputable evidence that a strike by the bakers of the same city for an increase of wages, was made as early as 1741, and that in 1796, 1798, 1799, the shoemakers of Philadelphia struck for an increase of wages in the first two years named, and against a reduction of wages in the latter year, and were successful, or partially so, in each instance. This clearly proves the fact of the existence of labor organizations as early as mentioned, although they were undoubtedly few in number and feeble in strength.

Extracts from the "Story of Labor," by John S. Cameron, compiled by Hon. S. W. Matthews, labor commissioner of Maine, show that "The formation period of the present vast system of labor societies and trades unions in the United States began with John Quincy Adams's accession to the presidency in 1825, and continued till the incoming of President Lincoln, and the outbreak of the Civil War in 1861. The rapid increase of population during the first quarter of the century, the settlement of new territory west of the Alleghanies, and even west of the Mississippi river, the multiplication of industries and the greater growth of cities, had brought and was constantly bringing new conditions to which working people in the older communities of the seaboard could adjust themselves only through concerted action. The majority of artisans no longer worked in their own little shops, and the accumulation of capital was beginning to raise questions of conflicting interest between employer and employé.

"It was during Andrew Jackson's second administration that the first labor representative was elected to the Congress of the United States. The gentleman who won this distinction was Ely Moore, who in 1833 was president of 'The General Trades unions of the city of New York.' Like the central unions and trade assemblies of the present day, it aimed to unite under one central head, all the unions of the city and vicinity. Its objects, as stated in an address delivered by Mr. Moore in December, 1833, were both political and economic; to guard the laborer against encroachments of wealth; to preserve his natural and political rights; to narrow the line of distinction between employer and employed; to promote the latter's pecuniary interests, and to aid those out of employment. He also advanced the theory, since so generally adopted by all labor organizations, that the general trades unions would diminish the number of strikes and lockouts, instead of increasing them. One significant clause of the constitution of this central body is, we believe, universally adopted by all recent central unions. It is: "No trade or art shall strike for higher wages than they at present receive without the sanction of this convention."

"Combinations and conspiracy laws existed in most if not in all the states. The first victory of laboring men against these laws was won in the famous 'Journeymen Bootmakers' case in Massachusetts in 1842. The prosecution brought against the Bootmakers' union, under the old conspiracy laws, was then decided in favor of the defendants, and no question as to the legality of labor organizations has since been raised in that state.

"In the decade from 1830 to 1840, the agitation for the reform of labor abuses was more active than in any period of our history, previous to the Civil War. Seth Luther, in a lecture delivered at a number of places in New England, vigorously assailed the hard usage of children that had become a feature of New England factory life. . . . Carter, Rantoul, and Horace Mann, a little later, took up the advocacy of measures that should protect child operatives, and enable them to obtain, at least, some rudiments of education. . . . A powerful agent in alleviating the oppressions of factory management, was the New England Association, which first met in Boston in 1831, and again in 1832. It set on foot organized action in favor of the ten

hour day, improvement of the educational system, abolition of imprisonment, removal of restrictions upon the right of suffrage and for a mechanics' lien law. For elevating the condition of working people it proposed the organization of the whole laboring population of the United States, the separation of questions of practical reform from mere party contests, dissemination of labor literature and a judicious selection from among political candidates of the party to which workingmen may happen to belong, of those who would give the best guaranty of promoting the reforms in which working people were most deeply concerned.

"In 1849 the labor movement entered upon the last and most active decade of the formation period. Local labor unions were not only rapidly increasing in numbers, but were consolidating into national and international organizations. A national convention of compositors that met in New York in 1850, laid the foundation of the present International Typographical Union, including Canada and the United States, and having to-day a membership of 30,000 or more. National or International unions of hatters, metal workers, machinists, molders, blacksmiths, and a score of other trades were formed during the decade. The stout contest of the past thirty years had broken down many of the abuses and lifted many of the oppressions under which labor had suffered in the past, and in spite of the financial crash of 1857, some of whose evil effects still lingered, the workingmen of America found themselves in 1860 in a better position than they had ever occupied before. The multiplication of industries had broadened the avenues of employment, while improvements in the factory system had immensely increased the productive capacity of the workingmen, cheapening the product to the consumer and giving increased wages to the employé, and to labor a larger relative share of the product.

"Then came the great contest for the nation's life. As a result of that contest, old systems were swept away, old prejudices passed into history, the last debris of feudalism was cleared away, and the United States made ready for the good time to come. The boys came marching home, eager to hammer their swords into plowshares. Within six months a million and a half of men, north and south, began productive work. Confidence in the future was never at a higher flood, and the field for the hand of industry was

broad and inviting. The abolition of slavery raised the laborer of the South at a bound from the condition of the beast of burden to manhood. The emancipation of the slave was not a benefit to him alone, it was a distinct gain to all the farm workers in the land who came into competition with slave labor, or who produced the commodities which slave labor consumed. The effect of slave labor, like that of convict labor, was to force free labor to come to its condition and its wages. It worked for a bare subsistence, and produced under high pressure. It had only the scant necessities of life. It was not a purchaser in the market, but only an unfair competitor.

"Never in the history of the world did labor advance so rapidly as in the time lying between the close of the Civil War and the present time. The history of the time is a history of organization and combination. Capital has been setting the pace by constantly growing corporations and pools, and labor is following along the well blazed path with strong unions and confederations of workingmen stretching throughout the United States. Many of the local unions grew very strong, and the next step, that of national federation, was an easy one to make.

"A most important step in the 'Story of Labor' was the rise and progress of the granger movement, which began in 1866; and which, nine years later, had a membership of 763,263. The Patrons of Husbandry are not strictly a combination of wage-earners, but their work has been done along the same lines. They have steadily put their influence against the growth of railroad and corporation monopolies. . . No one can object to capital receiving its fair share in the product of its employment; but capital which is not wealth, but water, which is nothing but the notoriously bad result of stock jobbing pools, is a burden which neither the laborer nor the farmer should rest quiet beneath."

The first distinctive labor union in America is said to have been organized in New York in 1805, although isolated bodies of working men are known to have been in existence at least a half a century earlier. The membership of the union consisted mainly of former members of the Journeymen Tailors' union of England. The first paper

published wholly in the interests of labor was the *The New England Artizan*, in Boston, in 1832; and to-day there are several hundred regular publications devoted to the interests of the movement, in the United States and Canada. The first local trade or labor central body was organized on June 8, 1834, in Boston, with sixteen unions. The First National Convention of Trade Unions was held in New York city, October 12, 1845, and organized as the Industrial Congress of the United States.

In the early colonial days but little attempt was made to form special labor organizations, as there was a common bond of interest between employer and employé; but eventually European customs became dominant, and working men began to organize in an isolated manner. They were few in number and weak in influence until 1823, when the spirit of unionism became very prevalent; and they flourished extensively until the outbreak of the Civil War, during which period their growth was greatly checked; and they remained practically dormant until the revival of business after the close of the great conflict.

With the renewal of the industrial interests of the country came renewed activity in organized labor circles, and to-day this element in our social system is stronger in numbers and influence than ever before. A writer has briefly traced the development of the modern trades unions since the war in the following language:

"In 1869 the order of the Knights of Labor was established by seven garment cutters of Philadelphia, and after a slow growth for ten years it began to develop rapidly; and in 1885–6 it gained members by the tens of thousands weekly until it counted its followers by the hundreds of thousands. The order reached such a degree of power that it seemed for a time as though the economic and political powers of the country would be at its mercy. The clothing workers of many cities were also borne along on the tidal wave. But a re-action set in. The skilled trades soon found that the indefinite mass of people with whom

they were allied, without any self-government of their own, soon swamped their interests, and placed them at the mercy of irresponsible officials and other interests. The noble purposes and principles of the order were also sunk into the clamor of the inexperienced mass of members, and the organization was subject to abuses unparalleled in any similar organization. The order was constructed on lines of a general educational movement rather than a distinctive trade organization. A change soon took place; and after a series of great, disastrous strikes and other failures, the tide of organization was turned once more to the self-governing and democratic trade union. This developed into the national trade union, and then into the grand federation of local and national unions—the American Federation of Labor, which was simply a development of a crude but similar form of federation, which grew parallel to that of the Knights of Labor, but was for a time overshadowed by it.

"The American Federation of Labor originated from the movement which founded the National Labor Union in Baltimore after the close of the war in 1866, by delegates from sixty labor organizations. Subsequently eight conventions of the body were held successively each year; and in 1872, at Columbus, Ohio, the suicidal mistake was made by plunging into the sea of politics, and a presidential ticket was nominated.

"The great financial crisis of 1873 followed, the resources of the unions were drained and there was a general suspension of work. During the period of depression secret societies arose, the movement of the Knights of Labor previously described began its growth, and thus interfered with the natural and historic growth of the movement. Eventually the movement revived, and in Pittsburg, Pa., November 15, 1881, one hundred and seven delegates of trades unions met and formed the Federation of Organized Trades and Labor Unions of the United States and Canada.

"At the sixth annual convention of this body, held at Columbus, Ohio, December 8, 1886, the old federation was dissolved; and a more perfect plan of organization was adopted, under the name of the American Federation of Labor. A constitution was adopted, stating the main objects of the organization to be 'the encouragement of

formation of local unions, the closer federation of such societies through central trade and labor unions in every city, with the further combination of these bodies into state, territorial, and provincial organizations, to secure legislation in the interests of the working masses, the establishment of national and international trade unions based upon a strict recognition of the autonomy of each trade, and the promotion and advancement of such bodies, and the aiding and encouragement of the labor press of America.'

"Since then annual conventions were held in the leading cities of the United States east of the Mississippi river. At different conventions attempts were made to commit the organization to politics; but it always reaffirmed its traditional policy, guaranteeing civil and religious independence of its members, and to unite the efforts of the toilers to industrial ends without causing political or religious dissensions among a membership representing such a variety of opinions and faiths. But discussion and education on economic subjects is commended, and efforts made for its advancement.

"At present the membership of the American Federation of Labor represents over three quarters of a million of members through a great number of local, central, and national unions. There is also a great army not affiliated as yet with any national body, and a number of independent national organizations. But there is unmistakably a general tendency toward close affiliation and unity of action, which portends an invincible host of wealth producers that will be the power to preserve and advance the real glory and prosperity of the nation."

In discussing the subject of organized labor, the question naturally suggests itself, "What are the objects of trades unions?" a question easily asked but not so easily answered, for "the scope of the objects of unionism grows with the growth of unionism." One authority says the object of a trade union is "to ensure the freedom of exchange with regard to labor, by putting the workman on something like an equal position in bargaining with his employer." Prof. Fawcett says trades unions are formed so "that the laborer

may have the same chance of selling his labor dearly as the master has of buying it cheaply;" "to protect themselves against what are supposed to be the conflicting interests of their employers."

Ex-Commissioner of Labor Frank A. Flower of Wisconsin says: "The objects of unions, as at present organized, are manifold, and may thus be summarized: establishing uniform minimum scales of wages for skilled labor in given trades, mutual protection against unjust reduction of wages, fraternization of skilled workmen, formulating rules and regulations with a view to systematize labor in such a way as to prevent loss of time to either employer or employé, contributing toward mutual comfort, securing aid to members in adversity, appointment of apprentices to journeymen and kindred minor objects."

William Trant says: "The object of a trade union is a wide one, viz.: to do all that can be done to better in every respect the condition of its members. The raising of the rate of wages is undoubtedly the principal means to that end, but to say that it is the 'sole aim' is to mistake the one for the other. Based upon union, the efforts of these organizations are collective, and the results general, not special. Unlike most kinds of individual effort, the object is not to assist men to lift themselves out of their class, as if they were ashamed of it, or as if manual labor was a disgrace, but to raise the class itself in physical well being and self-estimation."

Sam. L. Leffingwell says: "Trade unionism . . . is a protest against older methods of compulsory direction. It is an institution prompted by the personal needs of the present, with little regard to questionable conditions in an unknown hereafter. It is a system of voluntary coöperation for mutual interests, as opposed to the direction and control of militant despotism. Trade unionism is sustained by the philosophy of economic disenthrallment, and . . is 'the connecting link between individual effort and social progress.'"

Diversified as the objects of labor organizations may be, —to cultivate a feeling of friendship among workingmen, to assist each other in obtaining employment and extending aid in time of distress, to secure an honest day's pay for an honest day's work, to elevate the dignity of labor, to improve the intellectual and social condition of their members;—they may be all summed up in the terse declaration of Samuel Gompers, president of the American Federation of Labor: "Protection and mutual assistance under adverse conditions." Varied are the methods by which this is sought to be accomplished, but to the credit of the workingmen of the country be it said, legitimate and honorable means only are recommended to accomplish this purpose. Details as to methods of work and objects sought are very clearly set forth in the preambles and platforms of principles of the various labor organizations represented in the state hereinafter mentioned, and therefore need not be further enlarged upon here.

LABOR ORGANIZATIONS IN NEW HAMPSHIRE.

LABOR ORGANIZATIONS IN NEW HAMPSHIRE.

Organized labor is more thoroughly entrenched in New Hampshire than is generally supposed. Within its limits are one National union, a State labor council, three Central labor unions, nearly three score Local unions, and several Knights of Labor assemblies. It was very difficult getting information from many of these bodies through fear, in some instances, that any knowledge regarding their numbers and strength would be detrimental to their interests, and distrust and indifference in others, and it was only after repeated solicitation, personally and by letter, that anything like a complete list was obtained. In the collection of data use was made of the following blank:

BUREAU OF LABOR,
Concord, N. H.,.....1894.

To the Officers and Members of.....:

GENTLEMEN:—The Commissioner of Labor respectfully requests answers to the following questions, that he may be able to show the laboring people of the state, in his next annual report, the true objects of organized labor, its scope of work, what it has already accomplished, and the advantages to be gained in uniting to protect and advance labor's common interests. But little is generally known of labor organizations and their work in New Hampshire, and a better knowledge of the aims and objects thereof will remove much of the unfavorable prejudice that apparently now exists against them. You need hardly be reminded that it is only by the hearty co-operation of the different labor organizations of the state, and all interested in the labor problem, that reliable statistics concerning the general condition of the wage-earners of New Hampshire can be obtained for compilation. Without such information, no correct understanding of the needs of the laboring classes can be formed, and no recommendation for their advancement can be made.

JOHN W. BOURLET, *Commissioner.*

Name and number of union, assembly, or organization,.....
City or town in which located,.....

Date of organization,.....
Number of members—male,.....; female,.....; total,.....
Do you meet weekly, once in two weeks, or monthly?.....
What are the requirements of membership?.....
Are apprentices admitted?.....
Are stipulated sick or accident benefits or funeral expenses paid, or are these benefits voluntary?.....
If stipulated, how much are the weekly benefits? $.....
For how long a time are weekly benefits paid?.....
If stipulated, how much are the funeral benefits? $.....
What other benefits (if any) are paid members?.....
Name of Secretary,.....P. O. address,.....N. H.

NOTE. The above questions are not so minute in detail as are asked for in other States, answers to which are readily given, and it is hoped no organization will refrain from giving the information desired. If copies of constitution and by-laws of subordinate unions could be forwarded to the bureau, together with other documents that will give information as to the rise and progress of such organization, it will be esteemed a great favor by the Commissioner, who has no other object in view but to advance in every way possible the interests of the laboring classes.

THE GRANITE-CUTTERS' NATIONAL UNION.

This union is located in Concord, and the following from an authoritative source, will give data as to its origin, together with some of the most important matters that have come before it for consideration:

"The first conception of this union was at Clark's Island, Me., January 2, 1877. A temporary organization was formed, and a board of officers elected. Communications were entered into with other places in the vicinity, and committees were sent to Vinal Haven, Hurricane, Spruce Head, and Dix Island, the result of which was the formation of local unions in each of those places. Subsequently a convention was held in Rockland, Me., by delegates from Clark's Island, Vinal Haven, Spruce Head, and Hurricane, when the organization of a national union was decided on, a constitution drawn up, and officers nominated to be voted on by the local unions represented; and

on March 6, 1877, the local union at Spruce Head announced that N. C. Bassick had been elected president of the National union; N. S. Fales, Thomas Faby, P. H. Cooney, J. P. Clay, and William K. Smith, executive committee; and Thomas H. Murch, secretary.

"The first meeting of the National board was held March 10, 1877, and duly organized as a National union. Communications were opened up with other parts of the country, and branches formed in other states; and on February 5, 1878, a convention was held in Evans Hall, Boston, Mass., in which twenty-two branches were represented.

"The first trouble of the union was at Vinal Haven, Me., April 6, 1878. The agent of the Bodwell Granite company having discharged thirty members of the union, a bill of prices was presented, and the other members struck. Since then the union has been engaged in several strikes and lockouts in various parts of the country.

"The union is conducted on conservative principles, purely democratic, and is one of the few organizations which have adopted the initiative and referendum. Nearly every branch has its bill of prices and agreements providing for disputes being referred to arbitration, thus preventing considerable trouble in minor matters.

"Combinations of employers have been formed to antagonize the union. In the spring of 1885 a combination was formed, composed of the Smith Granite company, the Rhode Island Granite Works, the Chapman Granite Works of Westerly, R. I., A. G. Crumb of Niantic, R. I., Charles F. Stott, Merritt Gray & Co., of Groton, Conn., Gates & Park, and Booth Bros. of Millstone Point to cut down prices fifteen per cent; and after a protracted struggle, the union was successsful in resisting the cutdown. The employers since then have organized the Granite Manufacturers' Association of New England; and on May 15, 1892, locked out the men in their employ, and after a long struggle compromises were made in all the places locked out, excepting Monson, Milford, Whitinsville, Mass., Stony Creek, Conn., West Dummerston and St. Johnsbury, Vt., which still remain unsettled.

"The union has had considerable trouble in contending against convict labor, and imported contract labor. The contractors for the Austin (Tex.) State Capitol building

sent an agent to Aberdeen, Scotland, to get granite-cutters; and on April 26, 1886, the agent landed at Castle Garden, New York, with seventy-eight granite-cutters and eight tool-sharpeners under contract to go to Burnet, Tex., to work for a syndicate composed of Senator Farwell, Col. Abner Taylor of Chicago, Ill., and others, and their sub-contractor, Gus Wilkie. An effort was made to prevent their proceeding any further in violation of the contract labor law; but owing to defects in the law, the agent and some of the imported aliens were allowed to proceed to Texas by the United States authorities, but twenty-four decided to remain in New York, and these having the proofs of the contracts made in Aberdeen, and of their passage money having been paid for them, affidavits were made before the United States commissioner, and all necessary documents forwarded to Texas for the purpose of testing the law. Suits were entered against the syndicate and the sub-contractor for the full penalty of one thousand dollars for each man imported. The syndicate by some means got clear; but judgment was given against the sub-contractor, Gus Wilkie, for sixty thousand dollars with a recommendation to the president of the United States that the penalty be mitigated, and President Harrison reduced it to eight thousand dollars.

"Convict labor has been used to a considerable extent in the monumental business in Joliet, Ill., Jackson, Mich., St. Cloud, Minn., and Sing-Sing, N. Y.; but in New York, owing to the persistent efforts of the New York City branch of the union, convict labor in competition with free labor in the granite trade has been abolished, and it is hoped that the other states will follow the example of New York.

"The headquarters of the union is at present located at 98 North Main street, Concord, N. H."

N. H. STATE LABOR COUNCIL.

The Federated Central Labor Union of New Hampshire was organized in Manchester, April 12, 1894. Its membership is composed of delegates from the central labor unions of Concord, Manchester, and Dover, and an organization was effected by the choice of a president, secretary, treas-

urer, and an executive board of three members. At its initial meeting it expressed itself in favor of lessening the hours of labor to fifty-eight weekly in the interests of the laboring people of the state; a law establishing factory and workshop inspections; a law protecting the labels of labor organizations from infringement or forgery; and endorsed the principle of direct legislation, otherwise known as the initiative and referendum. At a meeting held in Concord, October 13, 1894, the name of the union was changed to the New Hampshire State Labor Council, in order that the unattached labor unions of the state might become affiliated with it. The new organization reaffirmed the above industrial sentiments, and recommended the formation of permanent workingmen's political clubs within their respective parties, and the election of labor commissioner by the legislature.

CENTRAL LABOR UNION OF CONCORD.

The Concord Central Labor Union of Concord and Vicinity, was organized November 27, 1891, the following trades being represented by delegates: Stone-cutters, quarrymen, tool-sharpeners, printers, painters, carpenters, boot and shoe workers, and cigar-makers; subsequently delegates representing the iron-molders, barbers, plumbers, and machinists, were admitted to membership, and unitedly they have taken an active interest in all matters appertaining to the general welfare of the wage-earners within their ranks. The union is governed by the following preamble and declaration of principles:

PREAMBLE.

WHEREAS, It has been fully demonstrated by experience that organization and unity of action, among working people, are imperative and essential in order to combat the ever growing encroachments of organized and consolidated

capital; and as there are many questions affecting the interests of the working classes which cannot be dealt with in special and separate trade and labor unions; and as that end can best be attained by a central labor organization, through which all branches of labor may prove allies to any particular one that may be oppressed; and all may form one brotherhood for the defence and protection of the laboring masses,—therefore be it

Resolved, That we, the delegates of the various trade and labor unions here represented, do hereby form the Central Labor Union of Concord and Vicinity, for the purpose of organizing and concentrating the working classes for their own mutual protection, education, and social advancement, and to that end we adopt the following

DECLARATION OF PRINCIPLES.

We affirm it to be the chief duty of this union to encourage thorough organization of all classes of workers, as the first step toward greater industrial freedom.

We therefore pledge ourselves to extend all reasonable aid in organizing the unorganized trades, and in assisting to build up those already in existence.

We believe in the interdependence of craftsmen of all callings, and while conceding the right of each affiliated society to manage its own affairs, we declare it the duty of this central body to assist all local organizations in defending their rights and in endeavoring to secure better conditions of labor for their members.

We affirm one of the main objects of this union to be educational; to provide a local congress of labor, where questions of general interest may be discussed. We shall aim to form a society where representative men of the labor movement may become acquainted for mutual instruction and improvement; where ideas may be freely exchanged, and where the grave problems of social reform may be debated and analyzed.

It shall be the duty of this organization to assist in the public agitation of labor reform principles, and especially those of the short-hour movement, as formulated by the American Federation of Labor.

We assert that the economic integrity of organized labor can best be maintained by a strict policy of absolute politi-

cal non-partisanship, and declare it inadvisable that this union shall ever pledge its support to any political organization—national, state, or municipal.

We recommend, however, that every wage-earner shall exercise an independent use of the ballot; and, as a citizen, vote for those men and measures, irrespective of party, which he deems for the best interests of labor.

The Central Labor Union shall claim no jurisdiction over the political acts of any individual delegate, unless such action be taken in his capacity as a delegate. In such case, the delegate shall be subject to the penalty of revocation of all rights and privileges in this body.

We declare ourselves in favor of state or municipal legislation to secure the following measures, and that it is the duty of the organization to use all honorable influence with legislators to accomplish its enactment:

1. The furtherance of the shorter-hour work-day for public employés, and for women and children.
2. The abolition of child labor, under fifteen, in manufacturing and mercantile establishments, and the raising of the school age to sixteen.
3. The abolition of contract labor on public works.
4. The abolition of the system of employing armed forces for private corporations.
5. The regulation of prison labor so as to reduce to a minimum its competition with free industry.
6. An employer's liability act that shall not interfere with the common-law right of recovery.

The membership of the Central Labor Union is made up of delegates from any regularly constituted trade or labor organization in Concord, as above indicated. No delegate from any organization or party of a political nature is admitted to the body. The basis of membership is five from every organization numbering 100 or more, and three delegates from each with less than that number. The officers consist of a president, vice-president, recording and corresponding secretary, financial secretary, treasurer, three trustees, three auditors, and a sergeant-at-arms, who hold office for a term of six months. Regular meetings are held on the first and third Thursday evenings of each month.

Funds for the support of the union are derived from an income tax of $1.00 from every organization represented having 100 or less members, and fifty cents for each additional 100 members or fraction thereof.

To assist in the work of the union, eight standing committees are appointed, as follows: Committee on credentials, organization, statistics, legislation, grievances, labels, building, and education, each of which have specific duties. Two of the most important committees are the legislative and educational. The duty of the former is "to use all honorable means to secure labor legislation; to prepare petitions and attend public hearings upon the subject, and to prepare for introduction before the state labor committee such bills as the Central Labor Union may direct," etc.; and of the latter "to investigate any cases of the violation of the law which may be brought to its attention; to seek the coöperation of all bodies of organized labor in the enforcement of the law; to compile and submit such evidence as it may obtain for the furtherance of such enforcement, and to collect statistics bearing upon the subject of child labor."

MANCHESTER CENTRAL LABOR UNION.

The Central Labor Union of Manchester and vicinity was organized May 14, 1892. Its membership is made up of delegates from the following labor organizations; Carpenters, stone-cutters, lasters, spinners, molders, cigar-makers, barbers, plumbers, printers, shoe-cutters, and K. of L. shoe assembly. The preamble and declaration of principles by which it is governed is identical with that of the Concord Central Labor union, excepting that, in addition, it demands "The abolition of the poll tax as a pre-requisite for voting," and "Efficient factory inspection by the state, and the appointment of factory inspectors from the ranks of the working people."

The regular meetings of the union are held on the second

and fourth Sundays of each month. Nothing of a sectarian or party political nature is allowed to be discussed in the meetings, and members of the press are admitted to report proceedings except during executive sessions of the body. The officers and committees by which it is managed and its work carried on, including raising of funds for general expenses, are the same as in all central labor unions, and as hereinbefore indicated.

Dover Central Labor Union.

The Central Labor Union of Dover and vicinity was organized in 1890. Its present membership consists of delegates from the Mule Spinners' Association of Dover District, and the Textile Workers, K. of L., of Salmon Falls and Dover (Sawyer's Mills). The eligibility and basis of membership is identical with the other central labor unions of the state; the officers and committees are the same with similar lines of duty, and the method of raising funds for its support. The union is governed by the following preamble and declaration of principles:

PREAMBLE.

Whereas, The necessity for unity of action among the working-classes has been fully demonstrated, and we believe such unity of action can best be accomplished by an organization composed of delegates elected by the various trade and labor organizations; therefore

Resolved, That we, the representatives of the various trade and labor organizations, in order to form a central organization for the benefit of all working people, adopt the following

DECLARATION OF PRINCIPLES.

1. While we are opposed to entering any particular political party as a body, we declare it our duty to use our influence with the law making power to secure the following or similarly beneficial objects: The regulation of the employment of children, so that no child under fifteen shall be em-

ployed in workshops or factories; the adoption of proper laws regulating the hours constituting a day's work for women and children, and for city, town, state, and national employés; efficient and honest factory inspection; reforms in prison labor, so as to prevent the product of the convict coming into competition with honest industry; a law providing for the permissive incorporation of labor societies; for a free and secret ballot, and the abolition of the poll tax as a prerequisite for voting.

2. We declare it the duty of every workingman to use his utmost endeavors to secure the amelioration of the condition of the laboring classes generally; and to accomplish this we believe that a central organization should exist, whereby all divisions of labor may prove allies to any particular one that may be oppressed by capital.

3. We hereby pledge ourselves to assist each other in securing fair wages by all honorable means; and we shall withdraw, and use our influence to have others withdraw, all patronage from any unfair employer.

4. We declare that all existing beneficial labor laws should be rigidly enforced, especially those requiring compulsory education of children, and we pledge ourselves to take such measures as will secure such enforcement.

5. We are in favor of arbitration upon differences between employer and employed.

6. We favor the self employment of labor by co-operative association, as complete independence can only be obtained when the worker is no longer dependent on other individuals for the right to labor; and especially do we recommend that whenever strikes become necessary, that an aggressive resistance be made by the employment of the funds of our organizations in productive co-operation.

7. We pledge ourselves to aid in the adoption of union labels for all union-made goods, by our patronage.

The objects of the union as set forth in its constitution are "to unite the various trade and labor organizations of the city and vicinity, and to assist in the formation of organizations where none exist, so that a brotherhood may be formed for the defence of the rights and the protection of the interests of the laboring masses; to discuss and examine all questions affecting the general interests of the

working classes, and to concentrate the forces of labor so as to enable them to successfully compete with concentrated capital in controlling the law-making power of the country; to use our utmost endeavors to impress upon the various branches of labor the necessity for the maintenance of a more perfect organization of their craft, trade, and calling; to use all honorable means in our power to adjust difficulties that may arise between workingmen and employers, and, while the Central Labor Union has no desire to dictate, to individual organizations, as to matters of compensation for labor in their several bodies, we pledge ourselves to maintain them morally and financially in any just demand they may make."

Local unions, central labor unions, state, national, and international unions, affiliated with the American Federation of Labor and Knights of Labor, are the principal organizations through which organized labor effects its work. Various are the methods adopted to accomplish their purpose; but all are aiming to improve, in every way possible, the general condition of the working classes.

Printers.

The oldest national organization in the United States is the International Typographical Union, which was instituted in New York city December 2, 1850, under the call for a "National Convention of Journeymen Printers." The delegates present represented some six thousand members of the craft. At the third convention held in Cincinnati, May 3, 1852, the name was changed to the "National Typographical Union," and in 1869 to the "International Typographical Union." During the first few years of its existence its growth was slow. At the end of the first decade in 1860 there were but twenty-five unions, who were represented at the annual session of that year, held in Nashville, by forty-one delegates.

In the historical work, "Origin and Progress of the Typographical Union," by John McVicar, of Detroit, an ex-president of the I. T. U., he says: "The second decade began in the midst of civil war, with no session in 1861; and all the southern sisterhood of unions unrepresented for several years, with the president of the national body a brave soldier at 'the front' in behalf of that other union—our country. . . . . The first session in the second decade was attended by thirty-three delegates, representing seventeen unions, with scarce a wonder that it was small, with the southern brethren absent and the exciting times at the North to distract the unions of that section. The first dawn of the possibilities of a great organization was foreshadowed in the able report and suggestions of President Oberly* to the session of 1867, which was also a veritable reunion of printers who had worn the blue and the gray. Besides a stronger parent body, his strike fund paper and suggestions for an official organ or publication were proposed steps in the right direction, although years elapsed before their adoption. Before this decade closed the National union gave place to the International organization, and our brethren of the British Provinces joined forces in the typographical march of progress. It closed with the session of 1870, at which sixty unions were represented by eighty-three delegates, among the latter being one woman, and about ten thousand members, in round numbers, for the twenty years' growth."

The third decade was not very prosperous as a whole. The session held at Philadelphia during the centennial year was an important one; and in the following year, 1877, a delegate was elected to attend the printers' gathering at the World's Exposition in Paris in 1878. At the closing session of the decade forty-nine unions were represented by sixty-six delegates.

The session of 1890 closed the fourth decade, during

*John H. Oberly, Concord, N. H.

which time great progress was made along many lines, including the founding of the Printers' Home, the establishment of a strike fund, the publication of the official Typographical Journal, the strengthening of the parent body, and giving to each of its members, as near as possible, a direct voice in the government of the organization by the submission of constitutional amendments and other important matters to a vote of the subordinate unions. Since 1890 the growth of the International Typographical Union has been steady, and over thirty thousand members are now enrolled in its ranks.

Perhaps no work in which it has been engaged reflects greater credit upon it than the establishment of the Home for disabled union printers at Colorado Springs. As early as 1857 a proposition was made looking toward the erection of a home, but for several years the project received but little encouragement. As late as 1870, and again in 1877, it was "voted to indefinitely postpone as impracticable the establishment of a home for needy and infirm union printers;" but in 1886 new life was infused into the movement by an unconditional gift of $5,000 each from George W. Childs and Anthony J. Drexel of Philadelphia, which was subsequently devoted to that purpose. Subsequently, through investment, and contributions from the printers of the country, the fund was increased to $25,000; and the project was further advanced by the gift of eighty acres of land from the Board of Trade of Colorado Springs, made to the I. T. U. at the session of 1889, held in Denver. At the session of 1890 a law was adopted looking to the increasing of the fund and to the erection of the home, which was designated as "The Childs-Drexel Home for Union Printers." On May 12, 1892, the anniversary of the birth of Mr. Childs, the home was dedicated with imposing ceremonies, Hon. Jacob H. Gallinger, United States senator from New Hampshire, formerly a practical printer and a member of the I. T. U., delivering the dedicatory address.

Aside from this most creditable achievement the International Typographical Union has succeeded in reducing the daily hours of labor, notably in the Government Printing office, where the union rule is eight hours a day, and advancing wages, and also in securing beneficial legislation through the action of congress and other legislative bodies. In urging its claims, however, it has always been conservative in action, thus commending itself to the esteem and confidence of the general public.

The general idea of a trades union is that its chief and perhaps only purpose is the securing of the highest wages possible that can be coaxed, scared, or forced out of employers; but this is at once dispelled, so far as the I. T. U. is concerned, by the assertion of its president in 1890, who stated the aims of the organization to be as follows:

"We are united together for the purpose of moral, mental, and material improvement and progress; for the purpose of assisting each other in the maintenance of the just and equitable rights of the individual printer in obtaining a fair remuneration for his services; for the purpose of creating and cementing the bonds of friendship and brotherhood that should exist between all men, and especially between those of a distinctive craft; for the purpose of giving proper direction and effect to our benevolent feelings in caring for our sick and distressed craftsmen, and paying proper respect to the memory of our brothers in the performance of the last sad rights over the mute remains of those from whom the spark of life has departed."

In the I. T. U. is vested power "to establish subordinate unions of printers, pressmen, stereotypers, or electrotypers, bindery girls, book-binders, type-founders, editors (other than managing editors) and reporters, and kindred trades, who have served four years at their respective trades, and its mandates must be obeyed at all times and under all circumstances: Provided, That members may be admitted to newspaper writers', press feeders', mailers', and web press helpers' unions, who have served a less period than

four years." It also reserves the right "to fix, regulate, and determine all matters pertaining to fellowship in the allied crafts of North America, while to subordinate unions is conceded the right of making all necessary laws for local government which do not conflict with the laws of the International Union."

The revenue of the I. T. U. is derived from the sale of charters for subordinate unions, supplies, and monthly dues of twenty-five cents each from members. Twenty per cent. of the receipts are apportioned to the general fund to pay expenses of the body, thirty per cent. to a defense fund, thirty per cent. to a burial fund, and twenty per cent. to the endowment fund of the Childs–Drexel home for union printers represented in the I. T. U. On the death of a member in good standing in a subordinate union, an order is drawn upon the burial fund for the sum of $50 to pay burial expenses of the deceased, which order is honored immediately. The defense fund is maintained "for the sustaining of legal strikes, for resisting the encroachments of unfair and disreputable men when too strong for the local union to contend with, and for the purpose of maintaining and defending the principles of unionism as applied to our own trade," etc. The general laws provide that "when disputes arise between subordinate unions, or subordinate unions and employers, which cannot be adjusted after conference between the parties at issue, the matter may be settled by arbitration."

The International Typographical Union is represented in New Hampshire by three subordinate unions located one each in Concord, Manchester, and Laconia. A fourth formerly existed in Nashua, but after the suspension of the New Hampshire Republican, a morning daily, in that city, in 1892, its members became scattered and it surrendered its charter.

Concord Typographical Union, No. 297, was organized July 23, 1891, and has sixty-two members, which include

seven females. The objects of the union, as laid down in its constitution, is "the maintenance of a fair rate of wages, the encouragement of good workmen, and the employment of every honorable means which may tend to the elevation of printers in the social scale of life." Any printer (which is deemed to include persons of either sex who are directly engaged in the printing of books, newspapers, etc., whether a compositor, proof-reader, or job printer) who is twenty-one years of age and has worked not less than four years at the business, is eligible to membership. Apprentices in the last year of their apprenticeship and twenty years of age, who have worked three years at the business, are also eligible to "probationary" membership but are not entitled to the full privileges of the union until the expiration of their term of probation. Membership by card is also permissible. Any member in good standing who may retire from the business is entitled to a certificate of honorable withdrawal which will entitle him or her to full membership should the same occupation be resumed. No member working regularly at the business can demand the right of withdrawing on the plea of economizing expenses or of inability to pay dues. Upon leaving the jurisdiction of the union, an International Union card of membership is issued to the member, which is a certificate of good standing and a key to entrance in union offices, and may be used to regain membership in the union by which granted, should return be made thereto.

The officers consist of a president, vice-president, recording secretary, secretary-treasurer, two trustees, sergeant-at-arms, and an executive committee of three members, who have prescribed duties to perform as in all similar bodies. "Chapels" may be formed in printing offices where union help is employed, the officers of which are a chairman and secretary, who are endowed with authority for certain purposes, and from whose decisions appeal can be made to the executive committee and to the union if so desired. The

union holds meetings monthly, and is governed by a general code of laws covering its entire field of duty.

The spirit of unionism now largely manifest among the printers of Concord, undoubtedly had its origin to a great extent in an organization of the craft established in Concord some years ago, and known as "The United Brethren of the Black Art." Its membership embraced nearly all the male printers of the city, and its main object was the proper observance of Franklin's birthday, the printers' patron saint, and the social and intellectual advancement of its members. The full title of the society was "Franklin Chapel No. 1, U. B. B. A." It held meetings weekly, published an exclusive monthly called "The Proof-Sheet," to which nearly all the members contributed, debates were held, and it even extended its field into the domain of the drama, giving one or more public dramatic entertainments. Its annual banquets were elaborate affairs and highly creditable to the organization. Out of its ranks went several writers for the press who have won distinction in journalistic life, who gained their first experience in contributing to the "Proof-Sheet," and others who became successful in business and public affairs. The chapel flourished for three or four years, and finally went out of existence. Its influence, however, was not wholly lost, for some of the old members are now actively identified with the present Typographical union.

Manchester Typographical Union, No. 152, located in Manchester, was organized Sept. 23, 1885, and has a membership of 60, ten of whom are females. The qualifications for membership are the same as in all typographical unions, namely, four years experience in the printing business, and the union is governed by the general laws established by the International Union. Upon the decease of a member a funeral benefit of $100 is paid, $50 by the I. T. U., and $50 by the local union. Laconia Typographical Union was organized Oct. 10, 1894, and has 20 members.

MULE SPINNERS.

The National Cotton Mule Spinners' Association of America is one of the oldest of national labor organizations, having been established in 1858. The present organization was organized in December, 1889. It has branches in all the large cotton manufacturing centres, and is said to control 6,000,000 of the spindles of the country, representing a capital of over $100,000,000. It is steadily increasing in membership and has made great progress in its efforts to secure a uniform rate of wages. It was the chief factor in securing the passage of the fifty-eight-hour law in Massachusetts for the employés in manufacturing and mechanical establishments. The National Union rarely endorses strikes, and many concessions have been gained from employés on account of the fairness of the demands of its officers. Sick, funeral, and strike benefits are paid members.

The following "preamble" and "objects" represent its position in labor matters:

"WHEREAS, It has become evident that a fundamental change must take place in our social and industrial relations, and that our competitive society must be reorganized on the principle of a fair remunerative price for our labor, it is evident that the laborer must be protected against the false political economy which declares that a reduction of wages, by giving an impetus to competition, improves trade.

"While the working classes, who produce all the wealth, are being reduced to the most abject and degraded position, their employers are daily accumulating immense riches, until at length capital must centre in the hands of a few individuals or corporations, and be used with fearful effect in still further depreciating, oppressing, and degrading the laborers.

"It is impossible for labor to occupy the noble and dignified position which it ought to hold, until the relations of capital and labor are more equitably adjusted, by the em-

ployers giving to the employés a just and honest proportion of the profits of their labor."

Object—"A fair remunerative price for our labor.

"To cultivate by all honorable means a friendly feeling between employer and employed.

"A reduction in the hours of labor as the best means to improve trade.

"To establish a mutual instruction association, having for its objects the attainment of our rights, the protection of our interests, and our social elevation in society as men.

"To raise a fund to accomplish the above purpose."

Subordinate associations are allied to district associations, which may include all mills in the locality which, whether from geographical position, similarity of prices, or from whatever cause it may be desirable and practicable to so locate. District associations are governed by their own local laws, and have the control and management of their own local funds, subject to the general laws of the national organization.

Five local unions, located at Manchester, Dover, Somersworth, Newmarket, and Salmon Falls, reported to the Bureau, all but the first named being under the control of the "Mule Spinners' Association of Dover District," with headquarters at Dover.

This association was organized June 1, 1890, and the local branch at Dover has one hundred and fifteen members. The branch at Somersworth was organized the same date, and has thirty-six members; the branch at Newmarket September 1, 1890, eleven members; at Salmon Falls April 20, 1893, twenty-two members; at Manchester March 1, 1893, sixty members. All the local organizations identified with the Dover District meet monthly, and the branch at Manchester once in two weeks. To become a member a person must be working at the trade of mule spinning at the time of making application. Accident and funeral benefits are paid, and to be entitled to them a person must have been a member six months. The acci-

dent rules of the district association provide that if any member meet with accident while following his ordinary employment of mule spinning, which shall temporarily disable him, after one week he shall be allowed the sum of $5 per week for the first thirteen weeks, and $3 per week for the second thirteen weeks, provided accident or injury was not caused by cleaning machinery while in motion. In the event of death of a member, their next of kin shall receive $25 if the deceased shall have belonged to the association for six months, and if for one year the sum of $50; if without relatives, the remains are buried by a committee of members. Strike and lockout benefits are sometimes paid, and funds to defray expenses are raised by the payment of dues ranging from fifty cents to one dollar per month.

No political or religious questions are allowed to be introduced into the meetings; and in the event of a dispute between employers and employés relative to any grievance that may exist, it is the duty of the men aggrieved to try every legal means to have the grievance removed. Should the effort fail, an authorized deputation confers with the employer; and in the event of both parties failing to obtain redress, the matter is brought before a general meeting, when such steps are taken as are best calculated to remove the evil.

IRON MOLDERS.

The Iron Molders' Union of North America was organized July 5, 1859, and now covers over three hundred local unions and thirty thousand members scattered all over the country. Its financial resources are derived from a tax of forty cents a month per member, which is divided into funds to pay disability and death benefits to its members, as well as support them in case of strikes or lockouts. The death benefit is $100. The organization has succeeded in raising the average rate of wages from fifty to seventy-five

cents a day, and reducing the number of hours for a day's work from twelve and thirteen to ten hours. In many cities nine hours is now the established day's work. Much of the work is done by the piece, and the limit of a day's earnings is fixed at $3.50 per day. The great strike of March, 1887, against the combined Manufacturers' Defence Association, resulted in a sweeping victory for the Molders' Union. The local unions number over three hundred, with a membership of nearly forty thousand.

The first local union of molders in New Hampshire was organized in Manchester in September, 1888. It has now thirty-six members, and meets semi-monthly for the transaction of business. The requirements are four years' service at the trade of molder; and while apprentices are not admitted, the union exercises authority over them to a certain extent. Disability and death benefits are paid, the latter ($100) by the National union. Assistance from local funds is also given.

Molders' Union No. 258 in Concord was organized in October, 1889, and has thirty members. Meetings are held monthly. The same general rules as to qualification for membership, the payments of funeral benefits, etc., apply to all local unions of molders, and hence need not be repeated here.

Locomotive Engineers.

The Grand International Brotherhood of Locomotive Engineers was instituted at Detroit, Mich., August 17, 1863, as the "Brotherhood of the Foot-Board," and re-organized at Indianapolis, August 17, 1864, under its present name and title. The officers consist of a grand chief engineer, and assistant grand chief engineer, first, second, and third grand engineers, first, second, and third assistant engineers, grand guide, and grand chaplain, the first five of whom are required to devote their whole time to the interests of the brotherhood. The head-quarters of the brother-

hood is at Cleveland, Ohio, and its meetings are held and officers elected biennially. The grand dues are $2.00 a year, and every member in good standing is furnished with a copy of the "Journal of the B. of L. E.," without question one of the best trade magazines published. The Journal is authorized by the brotherhood and has a circulation of nearly 35,000 copies extending throughout the United States, Canada, and Mexico. The brotherhood numbers over 34,000 members, and through its efforts for the past thirty years, has not only succeeded in advancing the standard of wages of locomotive engineers nearly 50 per cent., but in many other ways has advanced their general condition in life.

One of the best features of the organization is the "Locomotive Engineers' Mutual Life Insurance Association," out of which all members, who can pass the necessary medical examination, and are not over 50 years of age, must, upon being initiated, take out one or more policies of $1,500 each. This is a wise provision for the families or relatives of the men engaged in the hazardous occupation of running railroad trains, and the millions of dollars already paid to bereaved families, speak louder than words of this grand beneficence. During the past two years over 400 claims have been paid, amounting to nearly a million dollars, and since the association was established in 1867, nearly $5,000,000 have been paid to the widows and orphans of deceased members. Independent of this great sum, over $700,000 has been expended in actual charity.

Associated with the Brotherhood in its work is the "Grand International Auxiliary to the Brotherhood of Locomotive Engineers of the United States and Canada," the membership being composed of ladies. The aim and purpose of the organization is "to more effectually combine and promote fraternal love and sociability within the families of its members; also, to render assistance necessary

in time of affliction or trouble." It was organized in Chicago, Oct. 21, 1887, by Mrs. Letitia B. Murdock, its present grand president, and is now composed of 195 divisions with 6,000 members. An insurance feature is connected with the organization, known by the title of the "Voluntary Relief Association of the Grand International Auxiliary to the Brotherhood of Locomotive Engineers," its object being "to aid and benefit the families of deceased members of the G. I. A. to the B. of L. E." This feature is not compulsory. On the death of a member the sum of $500 is paid, which amount is raised by a levy of 25 cents upon each member. No member can take out more than two policies.

The International Brotherhood of Locomotive Engineers is represented in New Hampshire by two divisions, one located at Concord and the other at Nashua. Tahanto Division, No. 335, B. of L. E. of Concord was organized August 17, 1864, and has 121 members. Meetings are held bi-monthly. The constitution for the government of subordinate divisions says: "No person shall become a member of the brotherhood unless he is a white man, twenty-one years of age, and can read and write, and is a man of good moral character, temperate habits, and a locomotive engineer in good standing, and in actual service as locomotive engineer when proposed, and has had experience as such at least one year; each division to be the judge of what constitutes one year's experience." As above stated, it is enjoined upon all members who are not over 50 years of age and physically qualified, to at once, after being admitted to membership, take out one or more policies of insurance, the number being limited to three of $1,500 each. Sick and accident benefits are paid, this division paying $10.00 per week for ten weeks.

Nashua Division, No. 483, B. of L. E. was organized at Nashua, Nov. 18, 1892, and has 26 members. It meets bi-monthly, and as to qualifications for membership, insurance

features, etc., it is governed by the general laws applicable to all subordinate divisions. Sick and accident benefits are paid—$10.00 per week for 14 weeks,—the amount being raised by an assessment of $1.00 per month. The families of deceased members are provided for in the event of need, and the widows and orphan children of the brethren are the especial object of care of the great brotherhood.

The Grand International Auxiliary to the B. of L. E. has two lodges in this state, Granite State Lodge, Division 49, located at Concord, and Golden Rule Lodge, Division 155, at Nashua. The former was organized Jan. 7, 1890, and has 46 members, and the latter in December, 1892, and has 26 members. Meetings are held bi-monthly.

The wives of members of the B. of L. E. are eligible to membership, and widows of members who were in good standing at the time of their death. The Concord division pays a sick benefit of $2.50 per week for a stated period of time. No death benefits are paid by any division. The insurance benefit is limited to two policies of $500 each, the payment of which is met by a levy of 25 cents for each policy held. In this branch of the brotherhood the carrying of insurance is purely voluntary.

CIGAR MAKERS.

No body of laboring men in the country is more thoroughly organized than the cigar makers. The first union was established in Baltimore in the fifties, which was then the centre of the cigar industry of the country. The next attempt was in New York city, and until 1864 all efforts to organize had been of a local or state character, and of varying success. On June 22 of that year the Cigar Makers' International Union of America was organized in New York city, and while it has seen years of discouragement, it has by dint of perseverance established itself on a substantial basis and made its influence felt in the industrial world. It now has a membership of 27,000, and

a reserve fund of $500,000. Chief among the successful achievements of the International Union is the "adoption of an admirable financial system and the payment of high dues; the shortening of the hours of labor; the adoption of the chain of benefits; the adoption of the blue label; and the initiative and referendum, which is in full force, even to the election of international officers who are chosen by a popular vote."

The minimum fee for membership is $3.00, and the weekly dues are 25 cents. Various forms of benefits are paid, $5.00 per week in case of strike; $3.00 per week, out of work benefit; $5.00 per week, sick benefit; a death benefit of from $200 to $550; a traveling benefit, and a wife and widowed mother funeral benefit. During the past fifteen years there have been paid $534,145.62 for strike benefits; for sick benefits, $675,217.14; death benefits, $225,010.15; travelling benefits, $506,602.67; out of work benefits, $150,-847.50; making a grand total of $2,091,823.08. In addition to these benefits, the International Union has succeeded in raising the wages of its members from 20 to 50 per cent., and in shortening the hours of labor to eight per day, which has been in operation since May 1, 1886.

An excellent publication, known as "The Cigar Makers' Official Journal," is issued monthly to members, and the annual financial report of the International Union published in connection therewith, is a model of conciseness and brevity. The officers of the International Union consist of a president, and seven vice-presidents and treasurer, who constitute the executive board, and are elected by a popular vote of the members thereof. Conventions are held triennially on the fourth Monday of September, the last session having been held in Milwaukee in 1893.

New Hampshire has two cigar makers' unions, one each in Manchester and Nashua. The local union in Manchester was organized in November, 1882, and has 145 members, two of whom are females. The Nashua union

has 26 members, two of whom are also females. A cigar makers' union formerly existed in Concord, but it gave up its charter several months ago. Both unions meet twice a month. Stipulated sick and death benefits are paid as herewith indicated: the first named being continued for thirteen weeks, and the latter varying according to number of years membership in the union. All persons engaged in the cigar industry, except Chinese coolies and tenement-house workers, are eligible to membership; this includes manufacturers who employ no journeymen cigar makers, and foremen who have less than six members of the union working under them. Apprentices are admitted as honorary members until the expiration of their apprenticeship. Local unions have the power to regulate the hours of labor in their respective localities, but in no case must they exceed eight hours per day, and any violation of this rule by a member subjects him to a fine of 50 cents a day for every violation thereof.

BRICKLAYERS AND MASONS.

The Bricklayers and Masons' International Union of America was founded in Philadelphia, October 16, 1865. From that year to 1873 it prospered and grew in numerical and financial strength, when the panic following showed its depressing effects upon the building interests of the country, and the disintegration of the union began as a natural sequence. This continued until 1880, when but three unions were left to uphold the charter of the organization. In 1881 prosperity again began to dawn upon it, and since that time it has been very successful. Subordinate unions are now located in all parts of the United States and Canada, and over 30,000 men are enrolled in their ranks. In 1885 the International Union established and carried into effect the nine-hour system of working, which has since been maintained by the organization,

although in some localities eight hours constitute a day's work. During the past dozen years it has expended nearly a quarter of a million dollars to sustain strikes, and over a million and a half for benevolent purposes. Arbitration is urged as the basis of all settlement of troubles between employer and employés wherever possible, and subordinate unions are requested to make laws to that effect. They are also urged to take such action in their respective towns, cities, counties, and states as shall secure the enactment of statute laws with reference to the shortening of the hours of labor in all branches of work, and where persons are employed to inspect bricklaying or mason work, the appointment of a practical workman.

The Dover Bricklayers' Union, No. 1, was organized March 13, 1890, and has eleven members. Meetings are held once in two weeks. The Manchester Bricklayers' Union, No. 3, was organized March 28, 1891, and has 66 members. The union meets weekly. Its object is "to obtain a fair day's pay for a fair day's work, and to unite all practical bricklayers to maintain the prices adopted by it." All members must be journeymen bricklayers. Apprentices are also admitted under certain conditions. The initiation fee is $10.00, and the monthly dues 25 cents.

RAILWAY CONDUCTORS.

The association known as the "Conductors' Brotherhood" was instituted at Mendota, Ill., July 6, 1868, and reorganized at Columbus, Ohio, December 15, of the same year. In 1879 the name was changed to "Order of Railway Conductors." The statutes of the order provides that "No person shall be eligible for admission to the order who is not actually employed as conductor of a train on a steam surface railway, and has had at least twelve months actual experience as such, provided, that any person who has had three years actual experience as a conductor on a steam

surface railway, and is at the time of making application in active service on a steam surface railway, shall be eligible to membership." The use of alcoholic liquors as a beverage is sufficient cause for rejecting any petition for membership. The order has three degrees, and no member can be promoted to the second or advanced to the third degree without having passed a creditable examination in the preceding degrees. Various forms of benefits are paid by the order, and expenses are met by an admirable system of dues. Nearly 10,000 conductors are affiliated with the order in various parts of the country.

At the second annual session of the Order of Railway Conductors, held at Columbus, December 15, 1868, the "Conductors' Brotherhood Mutual Life Insurance Association" was established for the purpose of providing a fund for the benefit of deceased members. The name was subsequently changed to the "Mutual Benefit Department, Order of Railway Conductors." The object of the department, as laid down in the revised laws which went into effect July 1, 1893, is "to aid and benefit disabled members, and the families and any person having an insurable interest in the lives of deceased members of the order," etc. Five series of certificates are issued of $1,000, $2,000, $3,000, $4,000, $5,000 each, members not over thirty years of age at the time of joining the order being eligible to any of the series, and from that age to fifty years, to intermediate series according to age, those of the latter age being eligible to series A or the first named amount. All persons applying for membership in the order are required to make application for membership in the Mutual Benefit Department at the same time, and the relief thus provided for the families or heirs of deceased members in the event of death is one of the order's best features. Membership fees and assessments are placed upon an equitable basis, and benefits are paid either to disabled member if living or to the nearest of kin if deceased, if not otherwise disposed of by

lawful will. The order publishes an official paper, known as "The Railway Conductor."

The order of "Railway Conductors" is represented in New Hampshire by Concord Division, No. 335, located in Concord. It was organized in September, 1892, and has 33 members. Meetings are held twice a month.

Locomotive Firemen.

The Brotherhood of Locomotive Firemen was organized at Port Jervis, N. Y., December 1, 1873. The headquarters of the organization is located at Terra Haute, Ind. From one local lodge with nine members the brotherhood grew to a membership of nearly 30,000, but during the past two years it has fallen off several thousand, leaving the present membership at 26,500. The motto of the order is, "Protection, Charity, Sobriety, and Industry." Death and disability benefits are paid, and during the past fiscal year there have been paid 289 claims of $1,500 each, amounting to $433,500. The same benefit is paid for total disability as for death, and since 1880 the order has paid in various forms of relief the sum of $3,772,728.10. An official organ known as the "Locomotive Firemen's Magazine" is published by the order and furnished free to members.

Applicants for membership in the order must have served at least nine months as a locomotive fireman, and must be actually employed as a locomotive engineman at the time of making application. He must be white born, of good moral character, sober and industrious, sound in body and limb, not less than eighteen years of age, and able to read and write the English language. Locomotive engine "hostlers" who have served eighteen months as such, are also eligible to membership. The "Beneficiary Department of the Brotherhood of Locomotive Firemen" is an auxiliary association connected with the order, in which all members not over forty-five years of age and physically qualified

must participate. Policies of $1,500 are issued, and the beneficiary fund is replenished by an assessment of $2.00 upon each member whenever made necessary by outstanding claims. The "grand dues" are $2.00 yearly, and in subordinate lodges not less than $5.00 per quarter. Lodges may advance moneys to sick or disabled members, or in case of death advance moneys or contract expenses on the recommendation of the established board of relief, which amount is deducted from the sum due on the beneficiary certificate of the member receiving such assistance. Non-beneficiary membership is allowed under certain conditions. Lodges may pay weekly benefits to sick and disabled members providing local law so provides. A register of all unemployed members is kept by the grand secretary and treasurer, and officers of subordinate lodges are required to assist the employment bureau in securing situations for the unemployed. Standing squarely on the broad principles of benevolence and human justice, the Brotherhood of Locomotive Firemen has ever extended the helping hand and given counsel and assistance to the laboring man in his struggle for independence.

There are two lodges of the Brotherhood of Locomotive Firemen in New Hampshire, Granite State, No. 306, located at Concord, organized July 31, 1886, and Mt. Monadnock, No. 513, at Nashua, organized January 14, 1894. The former has 87, and the latter 20, members. Meetings are held fortnightly. Granite State lodge pays $4.00 a week sick or accident benefits, for a term of eight weeks. All lodges are governed by a code of laws established by the National Brotherhood, the chief features of which are above given.

LASTERS.

The Lasters' Protective Union of America was organized at Lynn, Mass., December 27, 1879, and was the outcome of the great lockout of the Knights of St. Crispin at Lynn, during the winter of 1877–'78. Its existence was kept

secret for several months. In 1880 it was successful in a strike for an advance of wages, and since then its growth has been gradual and steady. Until 1885 its membership was largely confined to the shoe towns in Massachusetts, and in April of that year all the local unions were merged into one general body, and named the New England Lasters' Protective Union. The organization is now national in extent, and has been affiliated with the American Federation of Labor since 1885. "The organization has always been opposed to strikes, preferring the more peaceable and rational methods of settling wage disputes; but it has never hesitated to strike when compelled to choose between a contest of this kind or a surrender of its principles." Through the efforts of the union the wages of lasters have been advanced 50 per cent., and the hours of labor reduced from 12 and 14 to 10 per day. Voluntary strike benefits amounting to over $300,000 have been paid to its members. The organization has been engaged in a great many labor troubles, and with but few exceptions has been successful in every case.

The officers of the Lasters' Protective Union consist of a president, vice-president, general secretary, treasurer, auditor, deputy, a general advisory board, and three trustees. The general advisory board consists of one member of each branch and the general secretary and general treasurer. This board with a local advisory board are empowered to decide upon the merits of all labor troubles or disputes, and the action that shall be taken thereon.

The revenue of the organization is derived by a per capita tax for various purposes, in which is included a per capita tax of two cents per month for the support of the official journal of the order, "The Laster." Each branch is required to keep an average of $1.00 per member in its treasury as an assistance fund, to be used in the event of a strike or lockout. A reserve fund of 25 cents a member is also set aside for certain purposes. Aside from the per

capita tax such assessments may be levied as may be deemed necessary. The usual system of cards is employed in regulating membership when traveling and in procuring work. Strike and lockout benefits of $4.00 a week are paid after a period of three weeks.

Any person of good moral character, sixteen years of age and upwards, and working as a laster, is eligible to membership. Apprentices are also admitted under certain conditions. Sick and funeral benefits are paid in some branches, but usually assistance of this character is purely voluntary.

The objects of the Lasters' Protective Union are,—"To protect its members from injurious competition, and secure thorough unity of action among them. Claiming as we do, that labor is capital, and the only capital that possesses power to reproduce itself, or, in other words, create capital, we assert that labor is the interest underlying every other interest, and therefore is entitled to, and should receive from society and government, protection and encouragement. We believe in organization as a proper and efficient remedy for many of the evils of the present iniquitous system of wages, that concedes to the laborer only so much of his own productions as to make comfortable living a bare possibility, and places education and social position beyond his reach.

"Recognizing the right of the manufacturer or capitalist to control his capital, we also claim and shall exercise the right to control our labor and be consulted in determining the price to be paid for it; and we believe that an organization embracing all lasters on boots and shoes is the most efficient remedy for the successful vindication of this right."

Eight branches of the Lasters' Protective Union reported to the Bureau,—Rochester Branch, organized March 31, 1884; has 104 members, meets weekly. Somersworth Branch, organized September 14, 1885; has 37 members; meets weekly. This branch pays a sick benefit of $5.00 a week for fifteen weeks, and a funeral benefit of $25.00. Pittsfield Branch, organized August 5, 1886; has 18 mem-

bers; meets every two weeks. Derry Depot Branch, organized October 18, 1886; has 60 members; meets monthly. Wolfeborough Branch, organized December 26, 1888; has 25 members; meets fortnightly. Manchester Branch, organized April 21, 1894; has 70 members; meets once in two weeks, and pays voluntary benefits. Concord Branch, organized in September, 1885; has 7 members; meets semi-monthly. The Farmington Branch has 60 members; meets weekly. A branch of 165 members formerly existed in Dover; it was organized December 27, 1879, but it now is a thing of the past.

Knights of Labor.

As early as 1869 the nucleus of what subsequently became the largest and most powerful labor organization the world has ever known, was formed. Its efforts for three or four years were a failure, and it was not until 1873 that the struggling elements of the body were given character through the efforts of Uriah S. Stephens, who, in February of that year, in the city of Philadelphia, gathered six companions about him, and organized what is now known as the Knights of Labor. It was an absolutely secret body at first, even its name for a long time being kept secret, and in place of a title five stars were used as its symbol. In consequence of this the order grew very slowly, and it was not until the session of 1881, held in Detroit, that the name was made public, after which it grew with marvellous rapidity. It combines within its membership nearly all classes of men, irrespective of race, creed, color, or sex, three fourths of whom must be wage earners or farmers. Employers who are in sympathy with organized labor may become members, but no lawyer, banker, or saloon keeper is admitted to membership. The preamble and declaration of principles of the Knights of Labor are as follows:

"The alarming development and aggressiveness of the power of money and corporations under the present indus-

trial and political systems will inevitably lead to the hopeless degradation of the people. It is imperative, if we desire to enjoy the full blessings of life, that unjust accumulation and this power for evil of aggregated wealth shall be prevented. This much-desired object can be accomplished only by the united efforts of those who obey the divine injunction—'In the sweat of thy face shalt thou eat bread.' Therefore we have formed the Order of the Knights of Labor for the purpose of organizing, educating, and directing the power of the industrial masses.

"It is not a political party, it is more, for in it are crystalized sentiments and measures for the benefit of the whole people; but it should be borne in mind, when exercising the right of suffrage, that most of the objects herein set forth can only be obtained through legislation, and that it is the duty, regardless of party, of all to assist in nominating and supporting with their votes such candidates as will support these measures. No one shall, however, be compelled to vote with the majority.

"Calling upon all who believe in securing 'the greatest good to the greatest number' to join and assist us, we declare to the world that our aims are,—

"I. To make industrial and moral worth, not wealth, the true standard of individual and national greatness.

"II. To secure to the workers the full enjoyment of the wealth they create; sufficient leisure in which to develop their intellectual, moral, and social faculties; all of the benefits, recreations, and pleasures of association; in a word, to enable them to share in the gains and honor of advancing civilization.

"In order to secure these results, we demand at the hands of the law-making power of municipality, state, and nation,—

"III. The establishment of the Referendum in the making of all laws.

"IV. The establishment of Bureaus of Labor Statistics, that we may arrive at a correct knowledge of the educational, moral, and financial condition of the laboring masses, and the establishment of free State Labor Bureaus.

"V. The land, including all the natural sources of wealth, is the heritage of all the people, and should not be subject to speculative traffic. Occupancy and use should be the only title to the possession of land. The taxes upon land should be levied upon its full value for use, exclusive of

improvements, and should be sufficient to take for the community all unearned increment.

"VI. The abrogation of all laws that do not bear equally upon capitalists and laborers, and the removal of unjust technicalities, delays, and discriminations in the administration of justice.

"VII. The adoption of measures providing for the health and safety of those engaged in mining, manufacturing, and building industries, and for indemnification to those engaged therein for injuries received through lack of necessary safeguards.

"VIII. The recognition, by incorporation, of orders and other associations organized by the workers to improve their condition and to protect their rights.

"IX. The enactment of laws to compel corporations to pay their employés weekly in lawful money, for the labor of the preceding week, and giving mechanics and laborers a first lien upon the product of their labor to the extent of their full wages.

"X. The abolition of the contract system on national, state, and municipal works.

"XI. The enactment of laws providing for arbitration between employers and employed, and to enforce the decision of the arbitrators.

"XII. The prohibition, by law, of the employment of children under fifteen years of age; the compulsory attendance at school for at least ten months in the year of all children between the ages of seven and fifteen years; and the furnishing at the expense of the state of free text-books.

"XIII. That a graduated tax on incomes and inheritances be levied.

"XIV. To prohibit the hiring out of convict labor.

"XV. The establishment of a national monetary system, in which a circulating medium in necessary quantity shall issue directly to the people, without the intervention of banks; that all the national issue shall be full legal tender in payment of all debts, public and private; and that the government shall not guarantee or recognize any private banks or create any banking corporations.

"XVI. That interest-bearing bonds, bills of credit or notes shall never be issued by the government; but that when need arises, the emergency shall be met by issue of legal-tender, non-interest-bearing money.

"XVII. That the importation of foreign labor under contract be prohibited.

"XVIII. That, in connection with the postoffice, the government shall provide facilities for deposits of savings of the people in small sums.

"XIX. That the government shall obtain possession, under the right of eminent domain, of all telegraphs, telephones, and railroads; and that hereafter no charter or license be issued to any corporation for construction or operation of any means of transporting intelligence, passengers, or freight.

"And while making the foregoing demands upon the state and national governments, we will endeavor to associate our own labors,—

"XX. To establish coöperative institutions, such as will tend to supersede the wage system, by the introduction of a coöperative industrial system.

"XXI. To secure for both sexes equal rights.

"XXII. To gain some of the benefits of labor-saving machinery by a gradual reduction of the hours of labor to eight per day.

"XXIII. To persuade employers to agree to arbitrate all differences which may arise between them and their employés, in order that the bonds of sympathy between them may be strengthened, and that strikes may be rendered unnecessary."

The Knights of Labor reached their greatest success in the middle eighties, when the membership exceeded a million, and their influence in industrial affairs became strongly felt. While not a political organization, it believed that many of the reforms needed to improve the general condition of the laboring classes could be gained only through the ballot box, and it exerted its strength in this direction in many states. It believed, however, in the education of the masses as the best means of accomplishing the greatest good for the working people.

In New Hampshire, in 1886, the knights made their influence felt in the politics of the state, demanding of every candidate for office, especially for representative to

the legislature, answers to a series of questions submitted in printed form, replies to which, favorable or otherwise, determined the question of their support or non-support at the polls. The result of their efforts was the election of many representative labor men and others favorable to the cause espoused to the legislature of 1887, which year witnessed the enactment of several good and wholesome labor laws. Within the past few years the order has become greatly reduced in numbers and influence. Its motto is: "That is the best government in which an injury to one is the concern of all."

There is no state assembly, Knights of Labor, in New Hampshire. Three local assemblies affiliated with the general assembly reported to the Bureau, as follows: Local Assembly No. 5, 429, K. of L., located at Newmarket; organized Feb. 15, 1886; has 27 members, 15 males, 12 females; meets once in two weeks; sick, accident, and funeral benefits, voluntary. Progress Assembly, No. 403, located at Manchester, organized Oct. 4, 1893; number of members, males 68, females 105, total 173; meets twice a month. Star Assembly, No. 3,118, located at Dover; organized Feb. 22, 1894; membership, males 54, females 22, total, 76; meets twice a month.

Boot and Shoe Workers' National Trade Assembly, No. 216, Knights of Labor.

An outgrowth from the Knights of Labor is the Boot and Shoe Workers' National Trade Assembly, No. 216, K. of L. The first annual session was held in Brockton, Mass., June 7–10, 1886, the object being to form an organization that should be national in its scope and future movements. It started out under favorable auspices, but dissensions subsequently arose which greatly retarded its growth and usefulness. It now has 7,000 members, and is said to be the greatest shoe organization of the country.

The aims and objects of the organization are "To thor-

oughly organize the boot and shoe workers of America; the establishment of local assemblies and divisions; the establishment, as far as practicable, of a uniform rate of wages for the same class of work everywhere; to secure for both sexes equal pay for equal work; to control the system of apprentices; to reduce the hours of labor by a refusal to work more than nine hours a day: to abolish the system of contract labor in shops, prisons, and reformatory institutions; to prohibit the employment of children under the age of fifteen years; to introduce the system of industrial co-operation in our trade; to use all legitimate means for the moral, social, and educational advancement of our members; to establish a system of intercommunication with the boot and shoe workers of other countries; to assist all branches of honorable toil in accordance with our obligation, who are not opposed to the K. of L. or its principles; to so conduct this organization as to render strikes and lockouts unnecessary."

The National Trade assembly is a representative body, each local being entitled to one delegate for 100 members or less, and one delegate for every additional 100 members or majority fraction thereof. Joint local boards have power to adjust labor difficulties or order a strike, and if needed, may have the assistance of members of the national executive board. In towns or cities where no local boards exist, the national master workman, with others constitute an executive board, with similar authority. The revenue of the National Trade Assembly is partially derived from the payment of forty cents a year by each member.

Two assemblies affiliated with National Trade Assembly 216, K. of L., reported as follows: Manchester Shoe Cutters' Assembly, No. 665, located in Manchester; organized April 24, 1894; number of members, 60, meets twice a month; none but upper, trimming, and lining cutters are admitted to membership; apprentices are not admitted; this assembly has an "Almoner's Fund,"

from which sick and funeral benefits may be paid. Fair Play Assembly, No. 934, located in Manchester; organized June 13, 1894; membership, males 43, females 94, total, 137; meets once in two weeks; benefits paid are purely voluntary. This assembly keeps a record of members out of employment, and also a list of situations to be had, with a view to furnishing employment to all its members.

Boot and Shoe Workers' International Union.

In June, 1887, the greatest convention of the shoe craft ever held in America convened in Brockton, Mass., at which time it was voted to form a National Trade Assembly. This action was the direct outcome of the efforts of the workers in the shoe craft to manage their own affairs, so far as the details of the craft were concerned, while in the order of the Knights of Labor. Great difficulty was experienced in obtaining a charter, which was secured only through threats of forming an independent trade union. The assembly met with great opposition from the general officers of the Knights of Labor, greatly retarding its growth, and the ill-feeling subsequently engendered, caused by the violation of an agreement to grant the National Trade Assembly certain privileges, led to the issuing of a circular to the shoe-makers of the country from the master workman of National Trade Assembly, No. 216, and on February 23, 1889, the K. of L. Assembly at Dover, N. H., surrendered its charter, and Union No. 1, Boot and Shoe Workers' International Union was formed. Other assemblies soon followed, and on April 17, 1889, the organization became affiliated with the American Federation of Labor. In June, 1893, the International Union had a membership of 4,000, which a year later was reduced to 2,500, owing to the prevailing hard times. The objects of the union are clearly set forth in the following preamble:

"Gigantic trades-unions of capital seem to be the order of the day, and take the form of trusts, syndicates, corpora-

tions, etc., while a large number are named after the occupations they follow. The worker to-day is the almost helpless victim of these trades-unions of capital. At the very moment of his birth a victim of the doctor's trade-union; all through life a victim of the innumerable trades-unions that control his food, clothing, and shelter; at death, a victim of the undertaker's trade-union; after burial, still the victim of the trade-union that owns the burial ground.

"In the shoe and leather industry of America there are forty-two trades-unions of manufacturers, jobbers, retail dealers, salesmen, drummers, etc., all organized to protect their own particular interests, and all seeming to be in a grand conspiracy to degrade the Boot and Shoe Workers of the country to a level of degradation rivalled only in the worst slums of Europe. The means employed to accomplish this end are many, among which may be mentioned the cut-throat system of competition, which first induces the manufacturer to underbid his neighbor in the market, and then seek to make up the loss by reducing the wages of his employees. Also the "free shop" (slave shop), the contract system, and most degrading of all the inhuman practice of supplanting the labor of the husband and father—the natural provider of the family—with that of the wife and children.

"With those indisputable facts before them, the Boot and Shoe Workers of America, recognizing the duty of the hour and asserting their manhood, have formed a trade-union of labor, to be known as the Boot and Shoe Workers' International Union of America. As the shoe factory presents the most complete form of organization in our trade, each man, woman, and child forming a link in a perfect chain, and all organized, drilled, and disciplined in the service and for the interest of the employer, so our first aim shall be to practically imitate the example of our employers, and organize, drill, and discipline the Boot and Shoe Workers for the better protection of their own interests and that of their families, and for the elevation of our craft. In the attainment of the latter result we shall—

"1. Become affiliated with the American Federation of Labor.

"2. Establish and maintain, as far as practicable, a uniform rate of wages for the same class of work everywhere.

"3. Secure for both sexes equal pay for equal work.

"4. Prohibit the employment of children under the age of fifteen years.

"5. Abolish the system of contracts in shops, prisons, and reformatory institutions.

"6. Reduce the hours of labor by a general refusal to work more than eight hours per day.

"7. Assist all branches of honorable toil by purchasing only goods bearing 'Union Labels.'

"8. Use all legitimate means for the moral, social, and intellectual advancement of our members.

"9. Establish an insurance feature for the benefit of our members in misfortune.

"10. Establish a system of communication with the boot and shoe workers of other countries."

The membership of the International Union is made up of delegates from local unions, the expense of attending its meetings being paid by the union of which the delegate is a member. The officers are a general president, vice-president, secretary, treasurer, executive board, and finance committee of three. The executive board consists of three members from Massachusetts, two from each other state and province represented, and one female member at large. The duty of this committee is to superintend all business pertaining to the boot and shoe trade, and where difficulties exist, which cannot be adjusted by the local council or local executive board, the same are referred to the general secretary, who himself, or some one he may designate, visits the locality calling for his services. He, or the person sent, together with a member chosen by the local council, constitutes an executive board for the settlement of all troubles, whose decision is final.

The minimum fee for admission into a local union is $2.00 for males and $1.00 for females. A per capita tax of ten cents for men and five cents for women is levied for general expenses, and five cents per member for defense fund. Strike benefits not exceeding $4.00 a week are paid. No manufacturer, contractor, foreman, or the wife of either, is eligible to membership in the International

Union; neither is any person engaged, directly or indirectly, in the sale of malt or spirituous liquors.

Any male person eighteen years of age and female sixteen years of age, and employed at any branch of the boot and shoe trade, is eligible to membership in a local union. The minimum dues are ten cents per week for males, and seven cents for females, payable weekly. Local councils may be organized, whose duty it shall be to keep themselves posted on all questions of interest to the trade, hear and decide all questions referred to them by local unions under their jurisdiction, subject to appeal to the general executive board, and "to use every available means to avoid strikes or stoppages of work which may be detrimental to the best interests of the members, preserve harmony between employer and employed, and be ever ready to labor for the advancement of organized labor."

The Lasters' Protective Union, the United Boot and Shoe Workers' National Trade Assembly, No. 216, and the Boot and Shoe Workers' International Union hereinbefore mentioned, are three distinct bodies, the first and last named being affiliated with the American Federation of Labor, and National Trade Assembly, No. 216, with the Knights of Labor. The three organizations recently entered into an agreement to mutually use and control one label for the entire craft. The label is diamond shaped, printed in black on leather colored paper, and is controlled by a code of rules which provides for a general label council, and other details of management. The adoption of the label unites the entire forces of the organized shoe workers of America on lines which will enable them to act in concert for the benefit of all who work at the trade.

Dover Union, No. 1, which surrendered its charter as a Knights of Labor organization to form the first union of the Boot and Shoe Workers' International Union, was organized at Dover, Feb. 23, 1889. It has 165 members; meets weekly in cold weather and monthly during the hot

months; admits apprentices in some departments of the trade; pays voluntary sick and funeral benefits; and an out-of-work benefit of $3.00 per week. Union No. 6, located at Berwick, Me., organized March 5, 1889, has forty members, all of whom work in Somersworth. It meets once in two weeks. Union No. 109, of Concord, was organized May 7, 1890; has sixteen members; meets monthly; admits apprentices under certain conditions. Cutters' Union, No. 176, located at Wolfeborough, was organized Jan. 4, 1894. It has twenty members and meets twice a month; pays no stipulated local benefits; apprentices not admitted. Union No. 49, located at Wolfeborough, is a mixed organization, admitting all shoe workers except lasters and cutters, and was organized May 17, 1894. It has ninety-six members—forty males and fifty-six females. Apprentices are not admitted. All local unions are governed by general laws covering the matter of membership, benefits, etc.

Painters and Decorators.

The Brotherhood of Painters and Decorators of America was organized at Baltimore, Md., March 15, 1887. From thirteen unions with a membership of 497 members it has grown to number nearly 200 unions with 10,000 members. The organization has been actively engaged in the movement for a shorter work day, and has been very successful in its efforts. Of the 264 unions reported in 1892, but eighteen were working sixty hours per week; ninety-seven unions work fifty-four hours per week; thirty unions, forty-eight hours per week, and the remainder between the two extremes. Not only has the brotherhood been successful in reducing the daily hours of labor, but it has increased the wages of its men in over 200 cities and towns. Strikes are avoided if the desired end can be gained without resort to them; but if not, they are ordered where success is apparently probable. Its discretion in this matter may be judged by the fact that of the seventy-eight strikes ordered

in 1893, fifty-nine were successful, eleven compromised, and only eight were unsuccessful.

The preamble and objects of the brotherhood as set forth in its constitution are as follows:

"In this great age of progress and civilization the universal tendency is toward organization and combination. The wealthy capitalists, combined and consolidated, monopolize and control the wealth of the world, while the rapid concentration of wealth and power in the hands of the monied classes has had an extremely injurious effect upon all branches of honorable toil. And in this respect none have suffered greater depression than the Painters and Decorators of America.

"Year by year our craft has been reduced from its rightful position among the mechanical callings. Our wages are much lower than in other trades, requiring no greater proportionate share of skilled or manual effort. For want of a strict apprentice system, and through lack of union, the trade literally swarms with unskilled men. Unfair and unscrupulous employers have introduced various illegitimate practices that are at once a discredit and a reproach. While everywhere, in the blind, senseless competition for work, cheapness has almost become the prevalent rule, to the detriment alike of employers and journeymen, to the injury of the public, and to the ruin and degradation of the trade.

"Now this condition of affairs demands our most earnest attention Shall we willingly permit our craft to sink lower and lower until it is beyond all possible hope of redemption? Are we not entitled to a just equivalent—a fair remuneration for our labor to meet the daily wants of ourselves and families, and to make proper provision for sickness and old age?

"It is evident that to protect ourselves we must combine! There is no hope for us only in unity and organization! We must form a union broad enough to embrace every competent painter and decorator in America,—one that will protect every man in his labor and in his wages. 'Single-handed we can accomplish nothing; but united, there is no power of wrong we may not openly defy.'

"Therefore it is imperatively the duty of every painter

and decorator to do all in his power to secure thorough organization and unity of action among the men of the trade. In obedience to that duty, and to accomplish the objects set forth in this constitution, we have formed the Brotherhood of Painters and Decorators of America.

"The objects of our brotherhood are namely: To rescue our trade from the low level to which it has fallen, and by mutual effort to place ourselves on a foundation sufficiently strong to resist further encroachments. We propose to re-establish an apprentice system, to encourage a higher standard of skill, to cultivate feelings of friendship among the men of the craft, to assist each other to secure employment, to reduce the hours of daily labor, to secure adequate pay for our work, to furnish aid in cases of death or permanent disability, and by legal and proper means to elevate the moral, intellectual, and social condition of all our members."

To be eligible to full beneficial membership the applicant must be a painter, decorator, or paper-hanger engaged at the trade and competent to command average wages, not over fifty years of age, in sound health, and of good moral character. Applicants in sound health over fifty years of age are admitted, but not as full beneficiary members. Applicants of good moral character, disqualified from full membership because of physical condition, are admitted as honorary members. Apprentices in their last year of service are also admitted, but are not entitled to full benefits and rights of full membership until having attained their majority.

Full beneficial members are entitled to the following benefits: Wife funeral benefit of $25 on six months' membership, and $50 on one year's membership. Members' funeral benefit of $50 on six months' membership, $100 on one year's membership, and $150 on two years' membership. Permanent disability benefit of $50 on six months' membership, $100 on one year's membership, and $150 on two years' membership. Members over fifty years of age at time of joining are entitled to death and disability benefits of $25 on six months' membership, and $50 on twelve

months' membership; also to one half the "wife funeral benefit." The funeral and permanent disability benefits are the same, and when the latter is once paid it relieves the brotherhood from any further obligation to the member receiving said benefit, and he at once becomes an honorary member. Over $30,000 in benefits has been paid since the brotherhood was organized, at an average cost per member of 90 cents.

The general assembly of the brotherhood meets biennially in August. Its membership consists of one delegate from each union of 100 or less members, two from unions of not less than 100 and more than 500 members, three from unions of more than 500 and less than 1,000 members, and four from unions of over 1,000 members. The officers consist of a general president, two general vice-presidents, a general secretary-treasurer, and a general executive board of five members. The executive board is chosen from the local union or unions in the city selected as head-quarters, and is authorized to decide all points of law rising under the jurisdiction of the brotherhood, all grievances and appeals, subject to the decision of the general assembly, authorize strikes in conformity with the constitution, and perform other important duties assigned to it.

In the event of a strike, a $5.00 a week strike benefit is paid, commencing with the second week. Five cents per capita each month is set aside as a protection fund, from which the strike benefit is paid, the fund being created for this special purpose and no other. Sick and accident benefits may be paid by local unions.

The brotherhood is in favor of weekly payment of wages, discountenances the use of articles manufactured in penal institutions, believes in strikes only after all other means to effect a settlement have failed, desires uniform lien laws throughout the United States and Canada, making a mechanics' lien the first mortgage on real estate to secure the wages of labor first and material second, which liens should

be granted without long stays of execution or other unnecessary delays; prohibits sub-contracting for work from boss painters, is in favor of an eight-hour work day, is opposed to any system of grading wages, deeming the same to be demoralizing to the trade, and an incentive to reckless competition, which has a tendency when work is scarce, to allow first-class men to offer their labor at second- or third-class prices; and believes in a minimum price for a day's work, with such gradations above that sum as the merit of the men employed are entitled.

It also believes in the indenturing of apprentices as the best means of raising the standard of labor in its own ranks, and declares itself in favor of the following rules:

"The indenturing of apprentices is the best means calculated to give that efficiency which it is desirable a workman should possess, and also to give the necessary guarantee to the employers that some return will be made to them for a proper effort to turn out competent workmen; therefore we direct that all local unions under our jurisdiction shall use every possible means, wherever practical, to introduce the system of indenturing apprentices.

"Any boy or person hereafter engaging himself to learn the trade shall be required to serve a regular apprenticeship of three consecutive years, and shall not be considered a journeyman unless he has complied with this rule, and is twenty-one years of age at the completion of his apprenticeship.

"All boys entering the trade with the intention of learning the business shall be held by agreement, indenture, or written contract for a term of three years.

"When a boy shall have contracted with an employer to serve a certain term of years, he shall on no pretense whatever leave said employer and contract with another, without the full and free consent of said first employer, unless there is just cause, or that such change is made in consequence of death or relinquishment of business by the first employer; any apprentice so leaving shall not be permitted to work under the jurisdiction of any local union in our brotherhood, but shall be required to return to his employer and serve out his apprenticeship.

"It is enjoined upon each local union to make regulations limiting the number of apprentices to be employed in each shop to one for such number of journeymen as may seem to them just; and all unions are recommended to admit to membership apprentices in the last year of their apprenticeship, without the privilege of voting and exempt from the payment of dues for that year, to the end, that upon the expiration of their terms of apprenticeship they may be acquainted with the workings of the union and better fitted to appreciate its privileges and obligations upon assuming full membership."

The brotherhood is represented in New Hampshire by Local Union 205, located at Concord; organized November 20, 1891: has forty-two members; meets once in two weeks; local benefits optional; and Local Union 77 of Manchester, organized January 18, 1893: has eighty members and meets semi-monthly.

GRANITE CUTTERS.

The details of the origin of the "Granite Cutters' National Union of the United States of America" have heretofore been given. Its constitution is prefixed with the following preamble:

"'Labor has no protection—the weak are devoured by the strong. All wealth and all power centre in the few, and the many are their victims and their bondsmen.'

"So says an able writer, in a treatise on association; and in studying the history of the past, the impartial thinker must be impressed with the truth of the above quotation. In all countries, and at all times, capital has been used by those possessing it to monopolize particular branches of business, until the vast and various industrial pursuits of the world have been brought under the immediate control of a comparatively small portion of mankind, although an unequal distribution of the world's wealth, it is perhaps necessary that it should be so. To attain the highest degree of success in any undertaking, it is necessary to have the most perfect and systematic arrangement possible; to acquire such a system, it requires the management of a

business to be placed, as nearly as practicable, under the control of one head; thus, concentration of wealth and business tact conduces to the most perfect working of the vast business machinery of the world. And there is, perhaps, no other organization of society so well calculated to benefit the laborer and advance the moral and social condition of the mechanic of this country, if those possessed of wealth were all actuated by those pure and philanthropic principles so necessary to the happiness of all; but, alas for the poor of humanity; such is not the case.

"'Wealth is Power,' and practical experience teaches us that it is a power too often used to oppress and degrade the daily laborer. Year after year the capital of the country becomes more concentrated in the hands of a few; and in proportion as the wealth of the country becomes more centralized, its power increases, and the laboring classes are impoverished. It therefore becomes us, as men who have to battle with the stern realties of life, to look the matter fair in the face. There is no dodging the question; let every man give it a fair, full, and candid consideration, and then act according to his honest convictions: What position are we, the Granite Workers of America, to hold in society? Are we to receive an equivalent for our labor, sufficient to maintain us in comparative independence and respectability, to procure the means with which to educate our children and qualify them to play their part in the world's drama? or must we be forced to bow the suppliant knee to wealth, and earn, by unprofitable toil, a life too void of solace, to confirm the very chains that bind us to our doom?

"'In Union There is Strength;' and in the formation of a Granite Cutters' Union, embracing every granite cutter in the country,—a Union founded upon a basis as broad as the land in which we live—lies our only hope; single handed we can accomplish nothing; but united, there is no power of wrong we may not openly defy. Let the granite cutters of such places as have not already moved in this matter organize as quickly as possible, and connect themselves with the National Union. There is not, there cannot be, any good reason why our employers should not pay us a fair price for our labor. If the profits of their business are not sufficient to remunerate them for the trouble of doing business, let the consumer make up the balance. The stereotyped argument of our employers, in

every attempt to reduce wages is, that their large expenses and small profits will not warrant the present prices for labor; therefore, those just able to live now must be content with less hereafter.

"In answer, we maintain that the expenses are not unreasonable, and the profits are large, and in the aggregate great; there is no good reason why we should not receive a fair equivalent for our labor. A small reduction seriously diminishes the scanty means of the operative, and puts a large sum in the employer's pocket. And yet some of the manufacturers would appear charitable before the world.

"We ask: Is it charitable, is it humane, is it honest, to take from the laborer, who is already fed, clothed, and lodged too poorly, a portion of his food and raiment, and deprive his family of the necessaries of life, by the common resort—a reduction of his wages? It must not be so. To rescue our trade from the condition to which it has fallen, and raise ourselves to that condition in society to which we, as mechanics, are justly entitled, and to place ourselves on a foundation sufficiently strong to secure us from further encroachment, and to elevate the moral, social, and intellectual condition of every stone worker in the country, is the object of our organization; and to the consummation of so desirable an object we, the delegates in convention assembled, do pledge ourselves to unceasing effort."

For the government of the National Union there is elected annually a National Union president, biennially a National Union secretary, and a National Union committee of five members, all of whom have certain prescribed duties to perform. The secretary is required to give his whole time to the duties of his office, receive such salary yearly as the union may determine, and is required to give a personal bond of $2,000, with proper sureties, for the faithful discharge of his duties.

The union publishes a monthly paper known as "The Granite Cutters' Journal," which is devoted to the interests of the craft. All members of the union contribute 25 cents a year for the journal and receive a copy; outside subscribers pay $1 00 per year. The revenues of the union are

derived from the income from the paper, a monthly tax, and such levies and assessments as occasion may require.

Eligibility for membership is determined by the local branches where application is made. The fee for members organizing new branches, for apprentices just out of their time, and for members who never worked in the vicinity of a branch, is $1.00; for applicants who have worked in the vicinity of a branch for three months and have not joined the union, not less than $3.00 nor more than $25.00, as circumstances may determine. Tool sharpeners are also eligible to membership. The monthly dues are 30 cents for general purposes, for all members of the union.

A funeral benefit of $125 is paid to the legal heirs of a deceased member in good standing at the time of his death; and to the heirs of a deceased member in arrears three and not over four months at death, the sum of $25.00; over four months in arrears, nothing. If a member die by accidental death before having been a member three months his legal heirs are entitled to the full funeral benefit.

Strike benefits are paid as the exigencies of the case may demand and the condition of the treasury warrant. The union guarantees its moral and pecuniary support to all its members in all difficulties arising between them and their employers sanctioned by it, but does not guarantee any stated sum per week, but in case of a legally sanctioned dispute it decides as to the mode of providing for the support of its members thrown out of employment. Local unions cannot order a strike without the consent of the National union, and that body does not give consent to such a movement until all honorable means consistent with justice and the rights of its members have been exhausted.

Members out of work and desiring to secure work elsewhere, may procure a loan of not exceeding $10.00 from the funds of the union, giving note for same upon the guarantee of at least two fellow-workmen in good standing, which amount must be repaid as provided for by law. Con-

tribution, travelling, and withdrawal cards are issued to members for various purposes, such as showing good standing and entitling the holder to certain privileges, and if leaving the business for a time to again return to it, and in the meantime to remain enrolled on the funeral benefit list. Members over fifty-five years of age are exempt from the payment of dues, except funeral levies, as are all members who are sick and out of employment for one month or longer, providing they were in good standing prior to date of sickness or unemployment.

The Granite Cutters' National Union is represented in New Hampshire by seven local branches, as reported to this Bureau: Concord Branch, organized March 10, 1877; has 367 members, and meets monthly. Redstone Branch, organized Oct. 22, 1888; has 122 members; meets monthly; sick and accident benefits, voluntary. Manchester Branch, organized in January, 1890; has eighteen members; meets monthly. Sunapee Branch, organized in July, 1891; has five members (varies according to state of business). Woodsville Branch, organized February 13, 1894; has twenty-five members; meets monthly. Milford Branch, organized August 1, 1894; membership not given; meets monthly. North Haverhill Branch, date of organization not given; has seven members; meets monthly. All local branches are governed by the general laws of the National Union.

QUARRYMEN.

The Quarrymen's National Union was organized with a membership of 800, August 15, 1890, in response to a call issued by Samuel Gompers, president of the American Federation of Labor, for a meeting of delegates from the several local unions of quarrymen affiliated with that body, to be held in Quincy, Mass., for that purpose. The organization flourished, and succeeded in reducing the hours of labor per day, for its members, from ten to nine, and in

increasing wages from five to ten per cent. In 1892 it became involved in the great lockout of that year, which included in its scope not only the quarrymen but the granite cutters and paving cutters of New England, the details of which are well known. As a consequence, 2,800 quarrymen were thrown out of employment for four months, and as a result the National Union suffered in resource and membership. The Granite Manufacturers' Association of New England, with whom the trouble was had, refused to recognize the Quarrymen's Union as such, but only as individuals, and they not as skilled labor, and the union spent $10,000, its entire resources, in fighting for the maintenance of its principles and for recognition as a body. It suffered temporary defeat, but is recovering from the struggle, and its future is every day growing brighter. The following preamble and objects are set forth in its constitution:

"'Wealth is Power,' is an axiom, the truth of which no man, whose daily labor earns his daily bread, will for a moment doubt; and practical experience proves that its possessors generally have used it to oppress and degrade the daily laborer. In the present organization of society laborers, single-handed, are powerless, and may be oppressed with impunity by their wealthy neighbors, but, combined, there is no power of wrong they may not openly defy. Believing in the truth of the above two propositions, the quarrymen have determined to unite themselves together for the purpose of securing that just and fair remuneration for their labor, which individual effort, however prudent and firm, has hitherto failed to obtain. To promote our interests, advance our moral and intellectual condition, and give weight and importance to our acts, as well as form a nucleus around which we can rally for the promotion of any object, we have formed ourselves into an association having in view the general interests of the quarrymen, in all the different positions in which they may be called upon to act. In union there is strength. A co-operation among ourselves will, by bringing the wisdom and energy of each to bear for the general benefit of the whole, secure the rights of all, and enable us to render to each other that

aid and assistance which may become necessary by the vicissitudes and changes of life."

Its objects are,—"The maintenance of a fair rate of wages, the encouragement of good workmen, and to use every means which may tend to the elevation of quarrymen in the social scale of life."

The officers of the Quarrymen's National Union consist of a national union president and secretary, and an executive committee of three, and the president and secretary as members *ex-officio*. They are elected by a popular vote of all the members, and serve for two years. The national secretary is paid $800 yearly for his services. The union publishes a monthly paper, and a penalty is imposed upon anyone issuing circulars or documents having reference to the general affairs of the union, except through the medium of the official paper. The revenue of the union is derived from a system of dues, levies, and fines, which are forwarded to the national secretary after deducting legitimate expenses incurred by local branches.

In the event of any controversy between members and employers, they are enjoined to use their utmost endeavors to bring about an amicable settlement, and if this fail, to resort to arbitration, if possible; the decision of the arbitrators to be final. Should these methods fail a strike may be ordered by a two-thirds vote of the branch involved, and the sanction of the national union executive committee. A branch striking on its own responsibility, forfeits all rights to the funds of the union, and the forfeiture of its charter may be imposed as a penalty, by the executive committee. This committee decides the amount that shall be paid to members in the event of a strike, not exceeding $5.00 per week.

Seven properly qualified persons may organize a local branch of the Quarrymen's Union. The initiation fee is $2.00, and applicants to be eligible for membership must be quarrymen, and working at the trade. In localities

where there are an insufficient number of tool sharpeners, or quarry engineers to form separate branches, they are also eligible to membership. Under certain conditions, not less than $3.00 nor more than $25.00 initiation fee may be charged. The monthly dues are thirty cents, which includes subscription to official journal. These may be remitted in case of sickness or other justifiable cause. Members sixty years of age, who have been in good standing three succesive years immediately prior to attaining that age, are also exempt from dues and levies, and are entitled to the full benefits and privileges of the union. Contribution, travelling, and withdrawal cards are issued to members for various purposes well known to all. Funeral benefits of $50 are paid to legal heirs of deceased members properly qualified, and if none appear, the union takes charge and pays all funeral expenses. The funeral benefit is raised by a levy of five cents on each member.

Local branches are governed by a president, vice-president, corresponding and financial secretaries, and a standing committee of three members, all of whom have prescribed duties to perform. A quarry steward is appointed for every quarry.

The Quarrymen's National Union has two branches in New Hampshire—Branch No. 22, located at Conway, organized in 1890, has sixty-seven members and meets monthly; and Branch No. 29, at Madison, organized October 14, 1890, has twenty members and meets monthly.

Tool Sharpeners.

Tool Sharpeners' Union, No. 6, located in Concord, was organized August 13, 1890, and has thirty-four members. It is identified with the granite industry, and to be eligible to membership, applicants must be competent workmen and of good character. Apprentices are not admitted. Meetings are held monthly. A funeral benefit of $125 is paid in the event of death, and an admirable system of dues and

levies enables the organization to carry on its work successfully.

CARPENTERS AND JOINERS.

The United Brotherhood of Carpenters and Joiners of America was founded in Chicago, August 12, 1881, and is now the largest single trade organization in the world. At its birth it had but 12 unions with a membership of 2,042. It now represents over 800 local unions in 630 cities with 85,000 enrolled members. It is organized to protect the carpenter trade from the evils of low prices and botch work; its aim is to encourage a higher standard of skill and better wages; to re-establish an apprentice system, and to aid and assist the members by mutual protection and benevolent means. It pays a wife funeral benefit of from $25 to $50; member's funeral benefit, $100 to $200; and disability benefit, $100 to $400. In these general benefits $64,584 have been expended the past year, and $293,548 the past ten years, while $571,000 more was spent for sick benefits by the local unions. The brotherhood is also a protective trade union as well as a benevolent society. It has raised the wages in 568 cities, and placed five and a half million dollars more wages annually in the pockets of the carpenters in those cities. It reduced the hours of labor to 8 hours a day in 52 cities, and 9 hours a day in 422 cities, not to speak of 457 cities which have established the 8- or 9-hour system on Saturdays. By this means 12,150 more men have gained employment. This is the result of thorough organization.

The objects of the brotherhood are: "To rescue our trade from the low level to which it has fallen, to encourage a higher standard of skill, to cultivate feelings of friendship among the men of the craft, to assist each other to secure employment, to secure adequate pay for our work, to furnish aid in cases of death or permanent disability, and by legal and proper means to elevate the moral, intellectual, and social conditions of all our members."

The officers consist of a general president, two vice-presidents, secretary, treasurer, and a general executive board, which board is authorized to decide all points of law, all grievances and appeals, to authorize strikes, and exercise a general supervision over the affairs of the brotherhood.

Ten or more journeymen carpenters or joiners may form a local union. An initiation fee of not less than $2 is charged, and beneficial members pay not less than 50 cents a month dues, and non-beneficial members and apprentices 30 cents a month. No member is exempt from paying dues or assessments. An applicant for membership must be a journeyman carpenter or joiner, stair builder, millwright, planing mill bench hand, or any cabinet maker engaged at carpenter work, or any carpenter or any journeyman running wood-working machinery, and must be of good moral character and competent to command average wages. Any apprentice of good moral character over eighteen years of age may also be admitted to membership, and on attaining the age of twenty-one years, if six months in good standing and otherwise qualified, is classed as a beneficial member. Apprentices under twenty-one years of age, and applicants fifty years of age in ill health, are classed as non-beneficial members. One year's membership is required to entitle heirs to maximum member's funeral benefit of $200; one year's membership to maximum wife funeral benefit of $50; five years' member ship to maximum disability benefit of $400; a less amount is paid for a shorter membership. Non-beneficial members and apprentices of one year's standing are entitled to a funeral allowance of $50 in the event of death. A strike or lockout benefit of $6 a week is also paid, and to be entitled to any financial aid a member must be in good standing. Clearance cards are issued to members desiring to transfer their membership to another locality, which must be deposited in some local union or be received by the local

union granting it, within thirty days, under penalty of suspension from all benefits for three months. Other penalties are imposed for transgression of the law.

Local unions are urged to enforce the following rules regarding apprentices:

"*Whereas*, The rapid influx of unskilled and incompetent men in the carpenter trade has had, of late years, a very depressing and injurious effect upon the mechanics in the business, and has a tendency to degrade the standard of skill and to give no encouragement to young men to become apprentices and to master the trade thoroughly; therefore, in the best interests of the craft, we declare ourselves in favor of the following rules:

"1. The indenturing of apprentices is the best means calculated to give that efficiency which it is desirable a carpenter should possess, and also to give the necessary guarantee to the employers that some return will be made to them for a proper effort to turn out competent workmen; therefore, we direct that all local unions under our jurisdiction shall use every possible means, wherever practical, to introduce the system of indenturing apprentices.

"2. Any boy or person hereafter engaging himself to learn the trade of carpentry, shall be required to serve a regular apprenticeship of four consecutive years, and shall not be considered a journeyman unless he has complied with this rule, and is twenty-one years of age at the completion of his apprenticeship.

"3. All boys entering the carpenter trade with the intention of learning the business shall be held by agreement, indenture, or written contract, for a term of four years.

"4. When a boy shall have contracted with an employer to serve a certain term of years, he shall, on no pretence whatever, leave said employer and contract with another, without the full and free consent of said first employer, unless there is just cause or that such change is made in consequence of the death or relinquishment of business by the first employer; any apprentice so leaving shall not be permitted to work under the jurisdiction of any local union in our brotherhood, but shall be required to return to his employer and serve out his apprenticeship.

"5. It is enjoined upon each local union to make regulations limiting the number of apprentices to be employed in each shop or mill to one for such number of journeymen as may seem to them just; and all unions are recommended to admit to membership apprentices in the last year of their apprenticeship, to the end that, upon the expiration of their terms of apprenticeship, they may become acquainted with the workings of the unions, and be better fitted to appreciate its privileges and obligations upon assuming full membership."

The declaration of the principles of the brotherhood are set forth in the following resolutions:

"*Resolved*, That we as a body thoroughly approve of the objects of the American Federation of Labor and pledge ourselves to give it our earnest and hearty support.

"*Resolved*, That members of this organization should make it a rule, when purchasing goods, to call for those which bear the trade-marks of organized labor, and when any individual, firm, or corporation shall strike a blow at labor organization, they are earnestly requested to give that individual, firm, or corporation their careful consideration. No good union man can kiss the rod that whips him.

"*Resolved*, That we most emphatically discourage carpenters and joiners from organizing as carpenters under the Knights of Labor, as we believe each trade should be organized under its own trade head in a trade union. This does not debar our members from joining mixed assemblies.

"*Resolved*, That it is of the greatest importance that members should vote intelligently; hence, the members of this brotherhood shall strive to secure legislation in favor of those who produce the wealth of the country, and all discussions and resolutions in that direction shall be in order at any regular meeting, but party politics must be excluded.

"*Resolved*, That while we welcome to our shores all who come with the honest intention of becoming lawful citizens, we at the same time condemn the present system which allows the importation of destitute laborers, and we urge organized labor everywhere to endeavor to secure the enactment of more stringent immigration laws.

"*Resolved*, That we hold it as a sacred principle that Trade Union men, above all others, should set a good example as good and faithful workmen, performing their duties to their employers with honor to themselves and their organization.

"We hold a reduction of hours for a day's work increases the intelligence and happiness of the laborer, and also increases the demand for labor and the price of a day's work.

"We recognize that the interests of all classes of labor are identical, regardless of occupation, nationality, religion or color, for a wrong done to one is a wrong done to all.

"We object to prison contract labor, because it puts the criminal in competition with honorable labor for the purpose of cutting down wages, and also because it helps to overstock the labor market.

"*Resolved*, That we most earnestly condemn the practice in vogue in many cities, but more especially in the west, that of advertising fictitious building booms, as it has a tendency to demoralize the trade in such localities."

In its general laws the brotherhood declares itself in favor of weekly payment of wages; an eight-hour work day; uniform lien laws throughout the United States and Canada, making a mechanic's lien the first mortgage on real estate to secure the wages of labor first, and material second: such lien to be granted without long stays of execution or other unnecessary delays; opposed to any system of grading wages in local unions, as demoralizing to the trade and an incentive to reckless competition; in doing all in its power to discourage strikes, and in adopting such means as will tend to bring about an amicable understanding between local unions and employers; and opposed to using any mill or other work manufactured in a penal institution, or brought from any town or city where cheap labor prevails.

The Brotherhood of Carpenters is represented in New Hampshire by three local unions. Union No. 118, located at Manchester, was organized November, 1, 1888, and has

90 members; meets weekly; pays a sick benefit of $2 a week for six weeks in each year. Union No. 585 in Portsmouth was organized May 15, 1890, and has 15 members; meetings are held twice a month. Union No. 283 of Concord has 41 members, and was organized March 7, 1891. It meets twice a month. Sick benefits are paid to beneficial members—50 cents for first week, and $4 for next six weeks, and non-beneficial members half as much for same length of time. Local unions formerly existed in Dover and Berlin Falls, but are now defunct.

Machinists.

Accompaning the constitution of the Grand Lodge of the International Association of Machinists is the following preamble and platform:

"The International Association of Machinists, believing it to be the natural right of those who toil to enjoy to the fullest possible extent the wealth created by their labor, and realizing that under the changing industrial conditions of our time, and the enormous growth of our syndicates and other great aggregations of capital, it is impossible for us to obtain the full reward of our labor except by united action;

"And believing that organization based on sound principles and directed by conservative intelligence, furnishes the best medium by which we may secure a more equitable share of the wealth which we create, and also promote the general welfare of our members by improving our trade and social conditions, thereby elevating the plane of citizenship, and by assisting each other in all matters relating to our industry, unite and solidify it in all its various branches;

"Therefore, we pledge ourselves to labor unitedly in behalf of the principles here set forth to perpetuate our Order on the basis of friendship and justice, to expound its objects and work for their general adoption, to respect and obey the laws laid down for its guidance and government, and always labor for its success, knowing as we do that when we are united no reasonable demand we may make can be denied us."

The International Association of Machinists aims:

"1. To bring within the folds of organization every competent machinist who has worked four years or over at the trade and is working at something connected with it at the time his name is proposed.

"2. To adopt and carry into effect an effective plan for keeping our members employed.

"3. To endeavor to secure the establishment of a legal apprenticeship system of four years.

"4. To impress upon all employers the necessity of paying all their employés the full current wages and giving preference of work to union men.

"5. To settle all disputes between employer and employé by arbitration when possible to do so.

"6. To shorten the hours of labor to eight hours per day, thus giving our members more opportunities for self-improvement and social enjoyment."

The grand lodge is a delegate body, presided over by a grand master machinist, a foreman, secretary and treasurer, and an executive board of seven members. The judicial powers of the body, when not in session, are vested in the grand master and the executive board. Representative meetings are held yearly, unless determined to the contrary by a majority vote of the local lodges. The revenue of the grand lodge is derived by a quarterly tax on each member of twenty-five cents. Should this be insufficient to meet expenses, the general executive board is authorized to levy such assessments as may be necessary to meet demands.

In the event of a strike or lockout, which is determined by a three-fourths vote of the local lodges interested, the matter is referred to the district lodge, or if not connected with such lodge, to the grand master machinist, in the form of a bill of grievance, with particulars, who forwards a copy to each member of the executive board, and either personally or by deputy visits the scene of the difficulty to make investigation, and, if possible, effect a settlement. If the executive committee approves of the grievance, such

further action is taken as may be deemed best; if not, the grievance shall be declared at an end. Strike benefits of $5.00 per week are paid to single men, and $8.00 per week to married men and single men having others dependent upon them for support.

District lodges may be formed in localities where there are not less than five nor more than twenty lodges, which shall be composed of duly accredited delegates therefrom. Its officers consist of a district master machinist, secretary, treasurer, and foreman, and an executive committee of five, which is empowered to settle all grievances sent them by the local executive committees, subject to appeal to the grand master machinist and general executive board. The district lodge has power to levy assessments for its maintenance upon all locals composing the district lodge, and adopt rules for the government of trade and local affairs under the general laws of the Order.

Any competent, sober, and industrious white machinist, serving an apprenticeship of four years at the trade, or who has worked at the trade four years, and received the general average wages paid in his locality, is eligible to membership in a local lodge. Apprentices who have worked three and one half years at their trade are eligible to membership at one half the regular initiation fee, and half dues and assessments, and are advanced to full membership upon the expiration of their apprenticeship. The minimum initiation fee for journeymen is $2.00. The monthly dues are not less than fifty cents. Sick benefits of not less than $1.00 per week for twelve weeks are paid. A member cannot become in arrears for dues while sick. It is the duty of local lodges to endeavor to keep their members in employment, and they are required to set aside a percentage of their dues as an "emergency fund," which may be used as occasion demands. The usual system of cards is used by the members.

The International Association of Machinists is represented

in New Hampshire by Mount Washington Lodge No. 276, located in Concord. It was organized June 14, 1892; has 32 members; meets monthly; pays $5.00 a week sick benefits for eight weeks, and is governed by the general laws of the International Association.

BARBERS.

The Journeymen Barbers' International Union of America was organized December 5, 1887, at Buffalo, N. Y. It had a hard struggle for existence for some years, but is now in a prosperous condition. Through its efforts it has succeeded in shortening the daily hours of labor and the closing of barber shops on the Sabbath. The officers of the Union consist of a president, four vice-presidents, secretary, and treasurer, which constitute an executive board. This board is authorized to grant charters to local unions; issue passwords; appoint organizers in states not represented in annual conventions, and perform such other duties as may be incumbent upon it. The revenue of the International Union is derived from the sale of charters and other supplies, and a per capita tax of ten cents a month per member. In July of each year an assessment of fifty cents is levied upon each member, one half of which is appropriated to a defense or organizing fund, and the other half to a sinking fund.

In the event of sickness, $5.00 a week after the first week is paid for a period of eight weeks, and for eight weeks following $3.00 per week; local unions are also required to visit the sick not less than once a week. Sojourning sick members are entitled to the same care and benefits by depositing card in the union under whose jurisdiction they may be. A death benefit of $50 is also paid to legal heirs of deceased members.

Any competent journeyman barber having served three years at his trade is eligible to membership in a local union. The admission fee varies from $1.00 to $5.00. Retiring and

travelling cards are issued to members, which entitle the holder to certain well-known privileges. Apprentices are admitted to membership, but are required to pay no dues, and are entitled to no sick or funeral benefits. The dues in a local union are fifty cents a month. Local unions are authorized to regulate the hours of labor, prices, and wages, in their respective localities.

The Journeymen Barbers' International Union is represented in New Hampshire by three local organizations. Union No. 82, located at Concord; organized January 18, 1892; has 25 members; meets monthly. Union No. 151, of Manchester; organized August 28, 1893; has 34 members; meets monthly. Union No. 166, organized at Nashua, April 27, 1894; has 10 members, and meets semi-monthly. This union furnishes watchers for its sick, if necessary.

Plumbers and Gas Fitters.

The International Association of Plumbers, Steam and Gas Fitters, was organized in June, 1887, by delegates representing local unions from several of the principal cities of the country. It is represented in New Hampshire by "Local Union, No. 16, of Journeymen Plumbers, Steam Fitters, Gas Fitters, and Steam Fitters' Helpers," of Manchester; was organized December 30, 1893; has sixty members, and meets twice a month. The following preamble outlines its position upon labor matters and the objects of the organization:

"The aspirations of this association is to construct an organization which shall subserve the interests of all its members and be a befitting monument to the union.

"The objects of this association are to protect its members from unjust and injurious competition, and secure thorough unity of action among all workers of the trades throughout the United States and Canada, claiming, as we do, that labor is capital and is the only capital that possesses power to reproduce itself, or, in other words, to

create a capital. Labor is the interest underlying all other interests, therefore it is entitled to and should receive from society and government protection and encouragement.

"Mankind generally condemn that which they do not thoroughly understand, and through prejudice and ignorance neglect to pay that strict attention and regard to the principle of unity for elevating their condition and for the accomplishment of good works, which is so much required in creating confidence, generating esteem and respect, and for promoting harmony and good feeling among themselves.

* * * * * * * * *

"Recognizing the right of the employer or capitalist to control his capital, we also claim, and will exercise, the right to control our labor, and be consulted in determining the price paid for it.

"We therefore urge upon all plumbers, gas fitters, steam fitters, and steam fitters' helpers, to join us in our efforts to secure, through the power of organization, both for ourselves and our children, a steady demand and a fair compensation for our toil, and a position in society, to which, as wealth producers and citizens, we are justly entitled."

Membership in the union is confined to persons of good character working at the trade. The initiation fee is $5.00, and dues fifty cents per month. Members removing to other localities, or becoming employers, or retiring from the business, may be retained as honorary members. It is contrary to the policy of the union to show a malicious spirit toward employers, being fully sensible to the fact that upon their prosperity depends the prosperity of the workingman; that it is the aim of its membership to use all honest efforts to forward the interest of employers conforming to the principles of the union. Strikes are resorted to only after all other means of settlement have been tried and failed, and cannot be engaged in without reference to the conference board and a three-fourths vote of the union interested. In the event of a strike or lockout, such benefits are paid as the exigencies of the case may determine.

Stationary Engineers.

In September, 1879, eleven engineers in Providence, R. I., met and organized the engineers' association of that state. From this small beginning the National Association of Stationary Engineers, was formed. It came into existence in New York, October 25, 1882, and is founded on broad and liberal principles, discountenancing all interference with the relations existing between capital and labor, the sole object being to improve the engineer, morally and intellectually, and to render him more valuable to his employer, thus creating a bond of sympathy between the two. Its platform of principles is clearly set forth in the following preamble:

"This association shall at no time be used for the furtherance of strikes, or in any way interfering between its members and their employers in regard to wages; recognizing the identity of interests between employer and employé; not countenancing any project of enterprise that will interfere with perfect harmony between them; neither shall it be used for political or religious purposes. Its meetings shall be devoted to the business of this association, and at all times preference shall be given to the educating and helping work contemplated in the formation of this order.

"The objects of this association shall be the better education, mutual improvement, and elevation of stationary engineers, to provide for the formation of subordinate bodies, and enact laws for governing the same."

The National Association of Stationary Engineers differs from almost all organizations of men who toil in the United States. It is organized almost exclusively for the purpose of educating engineers in the arts and sciences of steam engineering. Its meeting rooms throughout the country are school-rooms for disseminating knowledge that will enable the engineer to do his work without endangering life and property. Through its efforts it seeks to elevate the profession of steam engineering, and place it in the

position that its importance to every community entitles it. It strives to secure the enactment of laws prohibiting incompetent and intemperate men from taking charge of steam appliances and endangering human life. The association recognizes the fact that the public are no longer willing that life shall be destroyed through ignorance or intemperance in an engineer, hence it turns its efforts in the direction of technical education of its members, and transforms itself into a great national university of engineers, and its meeting-places into school-rooms for the purpose of intellectual advancement in its special field of work. Aside from its educational features, the association provides various forms of relief in the event of sickness and death of its members, if desired, and embodies in its general management many purely fraternal principles. Its membership is confined to citizens of the United States.

The National Association is represented in our state by Concord Association No. 3, located at Concord. It was organized March 13, 1886; meets weekly, and has twenty-two members. No one is admitted to membership except American citizens twenty-one years of age, who have had one year's experience in running an engine.

RAILWAY TRAINMEN.

The Brotherhood of Railway Trainmen was originally organized as the Brotherhood of Railway Brakemen at Onenita, N. Y., September 23, 1883, with thirteen members. The grand lodge head-quarters are now located at Galesburg, Ill. On September 1, 1894, it had 556 subordinate lodges in the United States and Canada. Its membership of over 29,000 is made up principally of conductors, brakemen, train baggagemen, train flagmen, yard masters, yard foremen, and switchmen. It had in force on September 1, policies of assurance amounting to $24,000,000, and had paid $2,610,468 in death and disability claims. It is repre-

sented in New Hampshire by Concord Lodge No. 537, located at Nashua, from which no return was received by the Bureau.

The following tabulated statement gives complete data of labor organizations in the state as reported to the Bureau. The barbers are represented by three local unions with a membership of 69; boot and shoe workers (International Union) by five, with a male membership of 281, female 56, total 337; boot and shoe workers, K. of L. (N. T. A. 216) by two, with a male membership of 103, female 94, total, 197; bricklayers and masons by two, with 77 members; carpenters and joiners by three, with 146 members; cigar makers by two, with 167 male and 4 female members, total 171; railway conductors by one, with 33 members; locomotive engineers by two, with 147 members; stationary engineers by one, with 22 members; locomotive firemen by two, with 107 members; granite cutters by seven, with 544 members; iron molders by two, with 66 members; lasters by eight, with 381 members; machinists by one, with 32 members; mule spinners by five, with 244 members; painters and decorators by two, with 122 members; plumbers and gas fitters by one, with 60 members; printers by three, with 121 male and 21 female members, total, 142; quarrymen by two, with 87 members; tool sharpeners by one, with 34 members; mixed trades, K. of L., by three; membership, males 137, females 139, total, 276. Total number of organizations reported 58; total number of members, males, 2,980; females, 314; total membership, 3,294.

The oldest organization in the state is Tahanto Division, No. 335, B. of L. E., organized August 17, 1864; the next oldest is Concord Branch of granite cutters, organized March 10, 1877. In 1882 one labor union was organized in the state; in 1884 one; in 1885 three; in 1886 five; in 1888 four; in 1889 three; in 1890 twelve; in 1891 five; in 1892 four; in 1893 six; in 1894 eleven.

TABULATED STATEMENT

Giving classification, number, location, date of organization, and membership, of labor organizations in the state as reported to the Bureau.

CLASSIFICATION.	No.	Location.	Date of organization.	Membership. M.	F.	T'l.
Barbers	82	Concord	Jan. 18, 1892	25	...	25
"	151	Manchester.	Aug. 28, 1893	34	...	34
"	166	Nashua	Apr. 27, 1894	10	...	10
Boot and shoe workers, I. U.	1	Dover	Feb. 23, 1889	165	...	165
" "	6	*Berwick	Mar. 5, 1889	40	...	40
Boot and shoe workers, I. U.	49	Wolfeboro'.	May 17, 1894	40	56	96
" "	109	Concord	May 7, 1890	16	...	16
" (cutters)	176	Wolfeboro'.	Jan. 4, 1894	20	..	20
" " (cutters) N. T. A.	665	Manchester.	Apr. 24, 1894	60	...	60
" " K. of L., N. T. A.	934	Manchester.	June 13, 1894	43	94	137
Bricklayers and masons	1	Dover	Mar. 13, 1890	11	...	11
" "	3	Manchester.	Mar. 28, 1891	66	...	66
Carpenters and joiners	283	Concord	Mar. 7, 1891	41	...	41
" "	118	Manchester.	Nov. 1, 1888	90	...	90
" "	585	Portsmouth	May 15, 1890	15	...	15
Cigar-makers	192	Manchester.	Nov'er, 1882	143	2	145
" "	269	Nashua	Oct. 9, 1890	24	2	26
Conductors (railway)	335	Concord	Sept., 1892	33	...	33
†Engineers (locomotive)	335	Concord	Aug. 17, 1864	121	...	121
" "	483	Nashua	Nov. 18, 1892	26	...	26
Engineers (stationary)	3	Concord	Mar. 13, 1886	22	...	22
Firemen (locomotive)	306	Concord	July 31, 1886	87	...	87
" "	513	Nashua	Jan. 14, 1894	20	...	20
‡Granite-cutters	....	Concord	Mar. 10, 1877	367	...	367
" "	....	Manchester.	Jan'ry, 1890	18	...	18
‡Granite-cutters	....	Milford	Aug. 1, 1894	‡	...	...
" "	....	N. Haverhill	§	7	...	7
" "	....	Redstone	Oct. 22, 1888	122	...	122
" "	....	Sunapee	July, 1891	5	...	5
" "	....	Woodsville.	Feb. 13, 1894	25	..	25
Iron molders	258	Concord	Octob'r, 1889	30	..	30
" "	252	Manchester.	Sept., 1888	36	...	36
Knights of Labor mixed trades	403	Manchester.	Oct. 4, 1893	68	105	173
" " " "	3118	Dover	Feb. 22, 1894	54	22	76
" " " "	5429	Newmarket.	Feb. 15, 1886	15	12	27
‡Lasters (Protective Union)	....	Concord	Sept., 1885	7	...	7
" " "	....	Derry Depot	Oct. 18, 1886	60	...	60
" " "	....	Farmington	§	60	...	60

TABULATED STATEMENT

Giving classification, number, location, date of organization, and membership, of labor organizations in the state as reported to the Bureau.

CLASSIFICATION.	No.	Location.	Date of organization.	Membership.		
				M.	F.	T'l.
Lasters (Protective Union)	....	Manchester.	Apr. 21, 1894	70	...	70
" " "	.....	Pittsfield...	Aug. 5, 1886	18	...	18
" " "	....	Rochester...	Mar. 31, 1884	104	...	104
" " "	....	Som'sworth	Sept. 14, 1885	37	...	37
" " "	....	Wolfeboro'.	Dec. 26, 1888	25	...	25
Machinists	276	Concord....	June 14, 1892	32	...	32
‡Mule spinners	....	Dover.....	June 1, 1890	115	...	115
" "	....	Manchester.	Mar. 1, 1893	60	...	60
" "	....	Newmarket	Sept. 1, 1890	11	...	11
" "	....	Salmon F'ls	Apr. 20, 1893	22	...	22
‡Mule spinners	....	Som'sworth	June 1, 1890	36	...	36
Painters and decorators	205	Concord....	Nov. 20, 1891	42	...	42
" "	77	Manchester.	Jan. 18, 1893	80	...	80
Plumbers and gas fitters	116	Manchester.	Dec. 30, 1893	60	...	60
Printers (I. T. U.)	297	Concord....	July 28, 1891	55	7	62
Printers (I. T. U)	317	Laconia....	Oct. 10, 1894	16	4	20
" "	152	Manchester.	Sept. 23, 1885	50	10	60
Quarrymen	22	Conway....	1890	67	...	67
"	29	Madison....	Oct. 14, 1890	20	...	20
Tool sharpeners	6	Concord....	Aug. 13, 1890	34	...	34

*Somersworth.
†Associated with the Brotherhood of Locomotive Engineers is a Grand International Auxiliary composed of ladies, lodges of which exist in Concord and Nashua, with a membership of 72.
‡Not numbered.
§Not reported.

RECAPITULATION

Showing total number of labor organizations (by trades) and total membership as reported to the Bureau.

CLASSIFICATION.	Number organizations in state.	Membership.		
		Male.	Female.	Total.
Barbers	3	69	.....	69
Boot and shoe workers (I. U.)	5	281	56	337
Boot and shoe workers (N. T. A.)	2	103	94	197
Bricklayers and masons	2	77	.....	77
Carpenters and joiners	3	146	.....	146
Cigar makers	2	167	4	171
Conductors (railway)	1	33	.....	33
Engineers (locomotive)	2	147	.....	147
Engineers (stationary)	1	22	.....	22
Firemen (locomotive)	2	107	.....	107
Granite cutters	7	544	.....	544
Iron molders	2	66	.....	66
Lasters	8	381	.....	381
Machinists	1	32	.....	32
Mule spinners	5	244	.....	244
Painters and decorators	2	122	.....	122
Plumbers and gas fitters	1	60	.....	60
Printers	3	121	21	142
Quarrymen	2	87	.....	87
Tool sharpeners	1	34	.....	34
Mixed trades (K. of L.)	3	137	139	276
Total	58	2,980	314	3,294

FINANCIAL STATISTICS

BY

TOWNS AND CITIES.

FINANCIAL STATISTICS BY TOWNS AND CITIES.

The following tabulations show the assessed valuation, taxes committed for collection for year ending March 31, 1894, receipts, amount paid for salaries of school teachers and other school expenses, for highways, for pauper aid, and miscellaneous expenses, indebtedness, surplus, and cash in treasury, by towns and cities, compiled from the latest obtainable data. The receipts show the total sum received by the treasurers of the respective localities from all sources for the year ending February 15, 1894. Included in the school expenses, aside from salaries of teachers, are the amounts paid for school buildings and repairs, supplies, transportation, etc. In amount paid for highways are included expenses for new highways and bridges, snow roads in winter, etc., not including highway damages or public water. Pauper expenses include temporary aid to poor and to tramps, but not aid to dependent soldiers. In miscellaneous expenses are included amount paid for all other purposes. The indebtedness, the surplus where there is no indebtedness, and cash in treasury, are computed for the year ending February 15, 1894.

Table No. 1 gives the assessed valuation, taxes committed for collection, receipts from all sources, and disbursements, alphabetically by towns and cities, with names of county in which each is located. Table No. 2 shows the indebtedness, surplus, and cash in treasury, alphabetically by towns and cities. Tables Nos. 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, give resources and disbursements, by counties, with towns and cities arranged alphabetically. Table No. 13, recapitulation by counties. Tables Nos. 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, are a financial statement of the towns and cities, alphabetically arranged, by counties. Table No. 24, recapitulation by counties.

RESOURCES.

TABLE 1.—*Assessed Valuation, Taxes for Year ending March 31, 1894, and Receipts for Year ending Feb. 15, 1894, by towns and cities.*

TOWN.	COUNTY.	Assessed Valuation.	Taxes committed for collection.	Receipts from all sources.
Acworth	Sullivan	$304,664	$5,120.15	$8,809.65
Albany	Carroll	78,122	2,753.85	3,531.63
Alexandria	Grafton	223,200	3,745.20	7,111.26
Allenstown	Merrimack	648,332	6,094.33	10,713.62
Alstead	Cheshire	503,004	6,288.51	9,869.25
Alton	Belknap	582,736	12,354.00	23,758.80
Amherst	Hillsboro'	637,314	8,271.21	19,309.13
Andover	Merrimack	461,490	5,552.68	14,113.41
Antrim	Hillsboro'	545,782	10,949.30	34,512.20
Ashland	Grafton	488,067	7,711.45	11,265.91
Atkinson	Rockingham	297,442	3,569.31	4,251.04
Auburn	Rockingham	290,581	3,744.69	9,584.91
Barnstead	Belknap	516,028	7,655.26	16,052.21
Barrington	Strafford	446,372	13,531.94	26,697.34
Bartlett	Carroll	351,614	7,919.57	10,667.24
Bath	Grafton	510,327	10,103.24	15,831.44
Bedford	Hillsboro'	618,289	8,093.00	13,689.68
Belmont	Belknap	507,754	7,868.38	12,597.16
Bennington	Hillsboro'	229,357	6,807.54	8,257.79
Benton	Grafton	100,009	1,912.34	2,911.20
Berlin	Coös	1,390,940	32,826.18	164,757.26
Bethlehem	Grafton	721,347	13,185.87	17,921.51
Boscawen	Merrimack	661,566	10,442.78	19,066.03
Bow	Merrimack	420,483	4,188.97	10,126.80
Bradford	Merrimack	423,991	5,624.30	11,363.05
Brentwood	Rockingham	309,168	3,326.29	5,222.16
Bridgewater	Grafton	112,473	2,249.48	4,436.22
Bristol	Grafton	676,070	13,654.14	21,688.30
Brookfield	Carroll	128,580	2,186.96	3,400.26
Brookline	Hillsboro'	300,824	4,319.82	7,870.70
Campton	Grafton	346,030	8,649.75	17,032.56
Canaan	Grafton	515,927	8,119.05	13,315.84
Candia	Rockingham	346,975	5,186.77	10,729.79
Canterbury	Merrimack	488,460	5,128.83	9,726.28
Carroll	Coös	276,962	5,591.28	9,961.04
Centre Harbor	Belknap	242,242	2,622.05	4,583.43
Charlestown	Sullivan	830,115	12,407.54	20,902.51
Chatham	Carroll	92,689	1,956.87	1,956.87
Chester	Rockingham	372,101	4,668.73	7,389.07
Chesterfield	Cheshire	637,639	9,601.44	15,101.88

DISBURSEMENTS.

TABLE 1 (CONTINUED).—*School, Highway, Pauper, and Miscellaneous Expenses for Year ending Feb. 15, 1894, by towns and cities.*

Teachers' Salaries.	Other school Expenses.	Highways.	Paupers.	Miscellaneous.
$1,515.13	$71.00	$2,577.47	$290.24	$3,591.48
471.21	889.96	897.30		1,114.65
1,004.50	106.98	2,790.50	520.26	2,654.19
1,497.90	204.46	1,522.29	1,990.29	5,178.61
1,573.87	588.11	2,031.58	455.43	2,806.61
2,055.60	2,585.77	4,938.64	216.73	13,918.16
2,568.00	1,534.85	2,956.40	810.30	11,254.00
2,400.00	173.37	3,671.78	225.38	5,764.68
1,949.75	1,358.84	3,277.84	83.00	26,268.53
2,330.98	546.49	1,647.90	1,284.59	4,539.03
908.48	185.55	1,251.90	12.00	1,679.92
1,171.04	121.00	2,172.62	14.20	6,092.05
2,186.04	233.01	1,148.89	306.24	8,416.90
1,878.00	1,090.30	3,225.66	148.73	19,457.27
821.00	493.76	3,303.66	296.48	5,333.15
2,347.92	102.45	2,206.56	191.68	3,608.05
1,981.60	896.64	4,314.58	272.43	5,893.88
1,461.95	348.36	3,926.09	481.76	6,034.38
822.27	364.66	1,878.46	156.59	3,984.02
312.47	184.00	730.75	13.75	1,658.37
3,793.87	2,546.42	43,547.51	1,161.72	95,339.36
1,585.65	911.28	3,960.62	555.92	10,747.69
1,362.72	1,743.28	3,174.20	956.80	11,204.49
1,206.00	861.50	1,930.98	67.47	4,861.42
1,329.25	325.20	2,879.78	446.20	3,971.89
1,090.60	48.00	1,790.47	78.99	1,824.16
428.00	79.19	602.14	300.46	2,448.91
2,835.85	609.27	6,609.33	385.90	9,546.10
366.00	54.43	1,379.07		1,273.47
888.60	224.44	2,047.38	55.07	4,049.64
1,312.50	775.42	2,007.65	1,372.71	10,034.26
1,530.97	855.68	3,795.23	1,036.78	5,983.14
1,502.30	721.33	2,042.77	718.54	5,518.16
1,226.75	578.49	2,168.55	332.67	3,442.23
764.06	3,660.63	1,361.83	127.00	3,147.18
780.75	99.23	1,686.48	20.75	1,975.47
3,336.97	109.14	4,707.65	1,360.55	11,384.32
634.66	134.16	755.20		225.45
1,411.00	574.68	2,091.65	380.36	2,659.59
1,947.00	234.15	5,810.35	412.43	5,880.68

RESOURCES.

TABLE 1 (CONTINUED).—*Assessed Valuation, Taxes for Year ending March 31, 1894, and Receipts for Year ending Feb. 15, 1894, by towns and cities.*

TOWN.	COUNTY.	Assessed Valuation.	Taxes committed for collection.	Receipts from all sources.
Chichester	Merrimack	$295,846	$4,734.89	$10,045.31
Claremont	Sullivan	3,038,630	53,175.68	79,922.63
Clarksville	Coös	141,430	1,440.67	1,879.26
Colebrook	Coös	820,612	10,305.34	14,100.68
Columbia	Coös	267,093	3,158.74	4,633.69
Concord	Merrimack	10,894,907	204,585.27	476,235.23
Conway	Carroll	844,384	18,708.25	26,197.91
Cornish	Sullivan	476,984	7,952.44	9,168.84
Croydon	Sullivan	209,692	3,145.45	5,175.31
Dalton	Coös	156,220	6,337.16	10,133.81
Danbury	Merrimack	229,089	3,157.52	6,682.78
Danville	Rockingham.	203,006	2,926.42	4,484.77
Deerfield	Rockingham.	456,416	8,965.05	18,096.39
Deering	Hillsboro'	207,366	3,147.43	7,807.28
Derry	Rockingham.	1,108,089	19,816.53	35,497.61
Dorchester	Grafton	115,170	3,743.02	7,132.34
Dover	Strafford	9,065,157	157,677.37	593,611.28
Dublin	Cheshire	512,823	6,564.18	12,492.68
Dummer	Coös	142,206	3,199.68	4,657.31
Dunbarton	Merrimack	346,248	3,785.88	8,855.66
Durham	Strafford	533,308	9,112.47	12,029.85
East Kingston	Rockingham.	232,202	4,328.55	8,429.81
Easton	Grafton	119,420	1,492.96	2,233.51
Eaton	Carroll	136,672	2,882.90	4,979.66
Effingham	Carroll	229,928	4,058.69	6,033.48
Ellsworth	Grafton	29,325	936.63	1,548.80
Enfield	Grafton	587,185	9,722.19	18,188.94
Epping	Rockingham.	712,101	10,756.15	27,835.28
Epsom	Merrimack	346,675	5,204.69	9,323.78
Errol	Coös	120,006	3,419.07	5,687.45
Exeter	Rockingham.	2,873,099	59,712.18	102,255.37
Farmington	Strafford	1,341,875	32,947.90	45,870.56
Fitzwilliam	Cheshire	470,912	6,263.12	11,287.31
Francestown	Hillsboro'	406,156	5,655.46	8,396.08
Franconia	Grafton	390,433	5,465.63	8,665.21
Franklin	Merrimack	2,353,710	37,660.50	80,364.40
Freedom	Carroll	266,397	4,962.84	6,234.28
Fremont	Rockingham.	250,100	3,101.35	5,450.10
Gilford	Belknap	355,368	7,306.66	10,097.42
Gilmanton	Belknap	533,104	12,557.57	19,484.87

DISBURSEMENTS.

TABLE 1 (CONTINUED).—*School, Highway, Pauper, and Miscellaneous Expenses for Year ending Feb. 15, 1894, by towns and cities.*

Teachers' Salaries.	Other School expenses.	Highways.	Paupers.	Miscellaneous.
$870.00	$593.82	$1,728.36	$631.57	$4,571.11
11,473.41	1,650.00	10,677.36	6,352.50	48,199.47
348.00	229.09	568.95		633.30
3,490.22	617.04	2,082.75	491.19	5,238.83
1,387.03	439.81	899.86	102.00	1,604.80
53,745.10	770.00	34,433.43	5,157.61	331,012.78
3,295.35	984.59	3,662.68	238.61	12,243.22
1,128.00	751.52	2,637.40	580.49	4,069.73
608.50	214.98	1,337.72	216.83	2,772.04
809.70	571.89	1,905.68	248.35	6,224.34
788.80	515.49	2,649.09	215.56	1,126.55
1,025.47	68.41	739.41	277.75	2,176.57
1,791.50	240.82	3,841.29	1,176.72	8,947.11
1,006.44	261.93	1,819.17	98.12	3,770.00
3,525.93	1,544.42	5,305.42	925.86	18,296.03
431.64	28.70	1,421.95	171.76	4,860.23
22,984.48	8,217.95	18,063.85	2,163.25	513,588.47
1,400.00	217.46	4,121.99	13.50	5,005.10
794.41	88.19	824.38	6.82	2,871.94
1,395.83	135.05	1,514.81	101.25	5,422.52
2,376.12	1,330.07	3,109.41	21.75	4,030.29
773.10	1,094.66	858.80	104.00	5,251.62
463.24	23.21	687.58		681.73
628.84	118.66	2,108.08	5.50	2,723.79
1,042.02	201.36	1,089.78	319.81	2,242.54
159.00	28.00	600.00		210.00
2,098.94	458.39	5,547.27	713.05	9,333.83
2,353.10	784.45	2,654.98	899.35	20,242.56
1,436.93	292.02	1,884.50	1,215.26	3,190.20
342.61	303.31	914.51		2,971.28
8,000.00	2,473.26	8,259.05	2,746.04	86,333.14
4,814.64	1,978.71	14,447.65	105.19	22,790.22
1,663.23	486.67	2,907.38	720.21	5,495.93
1,391.28	213.72	1,819.72	223.44	4,601.34
1,311.74	57.64	1,786.44	268.37	4,700.75
10,443.00	5,000.16	7,430.86	2,222.65	50,129.25
1,086.62	347.83	1,549.06	21.00	3,056.78
822.00	189.75	945.74	71.50	2,290.43
1,240.00	650.00	2,117.56	162.15	4,762.67
1,072.80	404.08	5,439.54	225.95	8,575.24

RESOURCES.

TABLE 1 (CONTINUED).—*Assessed Valuation, Taxes for Year ending March 31, 1894, and Receipts for Year Ending Feb. 15, 1894, by towns and cities.*

TOWN.	COUNTY.	Assessed Valuation.	Taxes committed for collection.	Receipts from all sources.
Gilsum	Cheshire	$288,122	$3,317.13	$6,327.41
Goffstown	Hillsboro'	1,145,126	13,688.51	31,233.55
Gorham	Coös	478,780	9,066.04	12,557.76
Goshen	Sullivan	148,585	1,857.32	3,754.29
Grafton	Grafton	287,020	5,357.61	7,745.31
Grantham	Sullivan	139,417	2,919.00	4,138.83
Greenfield	Hillsboro'	262,486	4,122.45	8,775.23
Greenland	Rockingham	370,424	4,510.65	8,289.25
Greenville	Hillsboro'	703,576	8,020.76	16,389.20
Groton	Grafton	117,062	3,244.83	4,671.17
Hampstead	Rockingham	347,686	4,175.83	7,312.14
Hampton	Rockingham	647,915	8,104.55	10,213.08
Hampton Falls	Rockingham	289,346	3,647.18	4,333.10
Hancock	Hillsboro'	324,564	3,883.87	8,690.62
Hanover	Grafton	1,042,402	11,943.14	20,766.32
Harrisville	Cheshire	320,941	5,959.03	9,084.58
Hart's Location	Carroll	32,820	424.18	400.42
Haverhill	Grafton	1,240,618	14,431.51	27,661.69
Hebron	Grafton	88,696	1,623.22	2,295.08
Henniker	Merrimack	673,636	10,141.38	24,315.56
Hill	Merrimack	180,483	2,155.44	4,764.95
Hillsborough	Hillsboro'	1,067,170	21,089.27	60,079.63
Hinsdale	Cheshire	1,011,357	22,250.15	38,149.15
Holderness	Grafton	234,056	4,751.52	6,876.51
Hollis	Hillsboro'	632,840	7,911.15	12,934.67
Hooksett	Merrimack	682,556	9,131.14	18,297.30
Hopkinton	Merrimack	872,223	14,106.64	24,408.66
Hudson	Hillsboro'	640,798	9,204.65	17,057.80
Jackson	Carroll	242,782	5,324.19	4,843.22
Jaffrey	Cheshire	827,158	8,735.45	23,181.92
Jefferson	Coös	305,212	6,736.66	10,550.25
Keene	Cheshire	6,464,708	89,401.00	186,665.13
Kensington	Rockingham	260,106	3,573.63	4,878.85
Kingston	Rockingham	356,210	6,337.33	7,658.00
Laconia	Belknap	4,419,312	74,923.30	144,081.60
Lancaster	Coös	1,334,964	26,300.00	39,046.59
Landaff	Grafton	224,188	2,683.92	4,758.51
Langdon	Sullivan	233,594	2,496.29	3,820.61
Lebanon	Grafton	2,267,524	39,652.53	75,043.64
Lee	Strafford	302,700	4,036.00	8,211.92

DISBURSEMENTS.

TABLE 1 (CONTINUED).—*School, Highway, Pauper, and Miscellaneous Expenses for Year ending Feb. 15, 1894, by towns and cities.*

Teachers' Salaries.	Other School expenses.	Highways.	Paupers.	Miscellaneous.
$923.20	$368.55	$1,597.29	$157.75	$2,730.84
4,326.25	1,279.11	5,028.68	540.48	18,496.46
3,829.08	204.65	2,033.82	181.15	5,985.19
530.25	122.31	604.79	186.51	2,150.92
998.00	773.93	1,755.70	399.76	2,746.11
395.50	106.77	502.13	233.63	2,900.19
1,230.00	500.00	2,283.33	194.79	4,436.91
1,263.00	985.12	2,141.30	357.03	2,505.81
1,317.50	597.17	1,166.99	543.09	11,857.51
640.05	135.75	1,332.42	61.42	1,277.40
1,080.00	230.78	1,503.77	83.35	3,964.38
1,259.40	320.78	3,367.27	195.29	5,005.67
1,116.90	246.73	1,168.12	2.00	1,799.35
1,193.80	1,503.79	1,830.28	178.10	3,234.20
3,259.35	1,259.85	4,537.41	1,871.99	7,558.74
945.13	166.63	2,489.31	14.25	4,083.21
66.00	25.00			159.42
4,522.60	2,053.16	7,681.85	970.11	11,235.77
231.00	99.74	306.27	157.25	1,101.74
3,813.00	1,322.48	4,922.12	385.66	12,448.57
978.09	280.69	1,572.86	130.41	1,695.90
1,691.35	1,082.19	31,353.18	528.49	24,566.45
5,314.33	3,390.52	4,022.44	1,257.79	24,038.74
985.40	334.73	1,677.75	192.57	3,156.58
1,721.80	822.61	4,080.73	150.50	6,159.03
1,788.00	2,883.02	3,309.01	1,040.23	5,815.06
2,439.10	1,273.50	5,315.41	409.20	10,947.36
1,937.75	1,023.00	3,837.43	729.72	8,002.79
681.52	1,370.51	1,219.80		1,090.50
2,018.85	11,527.53	4,599.74	1,179.62	3,523.55
1,290.65	3,878.55	2,337.89	196.43	2,846.73
21,586.03	1,785.37	12,075.17	7,014.75	133,182.80
726.00	135.04	1,288.10	57.85	2,055.93
1,772.33	246.55	2,025.35	184.49	3,184.20
13,260.91	15,051.43	23,603.14	500.28	82,650.72
1,856.10	808.40	5,998.19	801.00	25,307.51
798.50	243.48	845.26	512.29	2,294.30
679.50	278.92	1,606.47	53.28	606.31
13,585.32	1,216.83	7,940.22	2,525.40	42,057.19
891.00	473.72	1,636.02	76.67	4,396.76

RESOURCES.

TABLE 1 (CONTINUED).—*Assessed Valuation, Taxes for year ending March 15, 1894, and Receipts for year ending Feb. 15, 1894, by towns and cities.*

TOWN.	COUNTY.	Assessed Valuation.	Taxes committed for collection.	Receipts from all sources.
Lempster	Sullivan	$180,013	$3,324.57	$6,384.76
Lincoln	Grafton	124,513	1,170.42	1,685.64
Lisbon	Grafton	991,889	18,638.76	27,058.48
Litchfield	Hillsboro'	229,952	1,329.97	2,446.84
Littleton	Grafton	1,571,552	33,864.80	53,196.36
Livermore	Grafton	99,310		
Londonderry	Rockingham.	522,400	7,848.00	21,026.29
Loudon	Merrimack	507,585	7,112.83	12,362.44
Lyman	Grafton	188,672	2,907.37	4,467.09
Lyme	Grafton	475,266	3,380.93	8,195.67
Lyndeborough	Hillsboro'	284,422	4,838.59	14,569.03
Madbury	Strafford	264,455	2,309.34	4,986.12
Madison	Carroll	146,468	3,514.71	5,183.06
Manchester	Hillsboro'	27,444,142	507,640.81	1,374,336.09
Marlborough	Cheshire	636,185	8,909.75	16,737.59
Marlow	Cheshire	276,464	1,942.21	7,454.13
Mason	Hillsboro'	315,416	3,788.49	5,902.52
Meredith	Belknap	608,843	12,828.95	18,917.35
Merrimack	Hillsboro'	573,106	7,185.57	13,461.18
Middleton	Strafford	101,213	1,366.83	3,890.36
Milan	Cöos	280,146	7,283.79	13,039.98
Milford	Hillsboro'	1,764,982	30,000.54	71,439.07
Milton	Strafford	578,410	12,145.06	21,019.01
Monroe	Grafton	293,252	3,464.74	5,678.98
Mont Vernon	Hillsboro'	294,598	3,829.61	9,075.54
Moultonboro'	Carroll	351,137	6,173.61	9,850.46
Nashua	Hillsboro'	12,502,142	237,540.70	746,552.04
Nelson	Cheshire	135,379	2,097.25	4,152.21
New Boston	Hillsboro'	582,868	7,637.84	21,578.48
Newbury	Merrimack	271,188	2,723.24	6,946.94
Newcastle	Rockingham.	211,870	4,121.92	7,238.69
New Durham	Strafford	227,878	4,673.81	7,757.81
New Hampton	Belknap	301,137	5,419.18	9,040.25
Newington	Rockingham.	224,927	2,143.54	4,920.90
New Ipswich	Hillsboro'	514,568	8,627.94	15,641.53
New London	Merrimack	345,680	3,802.48	7,677.48
Newmarket	Rockingham.	1,275,120	22,085.47	30,289.30
Newport	Sullivan	1,436,614	28,877.28	43,270.32
Newton	Rockingham.	382,437	6,978.46	7,011.44
Northfield	Merrimack	499,436	6,049.75	14,288.19

DISBURSEMENTS.

TABLE 1 (CONTINUED).—*School, Highway, Pauper, and Miscellaneous Expenses for Year ending Feb. 15, 1894, by towns and cities.*

Teachers' Salaries.	Other School expenses.	Highways.	Paupers.	Miscellaneous.
$753.41	$180.39	$1,333.45	$5.75	$3,739.20
102.00		647.46	96.40	738.69
4,793.50	672.77	3,689.93	830.16	13,039.39
351.94	93.13	808.25		842.25
11,834.40	970.19	9,795.10	3,404.67	25,752.34
1,934.00	748.41	4,032.08	361.82	13,495.74
1,767.51	292.47	1,721.35	118.30	7,691.26
890.25	250.55	1,825.94	552.76	883.24
1,719.80	361.82	1,948.50	362.27	3,738.65
1,310.62	851.55	2,065.04	119.25	9,096.11
743.42	72.95	1,234.32	2.50	1,896.67
642.91	477.16	1,387.73	14.00	2,485.65
60,233.00	28,580.34	283,867.60	17,429.00	867,450.74
3,086.55	859.67	2,512.24	308.01	7,236.50
1,180.25	390.97	1,905.88	484.08	3,456.59
1,700.00	182.41	1,656.14	51.00	1,413.17
1,309.98	800.65	4,350.03	415.14	9,203.56
2,040.20	337.08	3,314.02	691.81	6,056.67
348.00	363.04	787.79	28.00	1,572.06
1,166.50	173.02	1,629.80	75.00	9,815.08
5,690.67	1,897.04	6,569.03	967.90	54,513.41
4,171.42	4,794.02	3,881.51	219.17	6,841.04
1,084.00	156.50	600.00	24.00	3,814.48
722.50	442.00	4,802.13	351.51	1,762.95
1,238.00	246.54	2,084.48	212.90	4,230.93
35,419.42	19,384.86	62,692.22	18,720.01	607,696.21
396.60	63.40	824.28	103.30	2,328.87
2,203.00	625.95	8,005.65	296.98	9,916.60
576.23	312.72	2,036.67	617.00	2,646.37
453.00	303.44	464.44	25.13	5,412.76
998.86	419.72	2,629.65	108.95	3,202.04
1,248.77	720.00	2,784.00	30.00	3,155.34
357.50	122.85	750.98		3,190.02
1,752.50	509.09	3,976.60	876.80	4,725.06
1,071.45	280.70	2,038.27	274.23	3,631.17
3,713.15	1,925.89	4,065.12	181.50	18,404.25
4,415.77	3,568.05	6,843.63	2,438.25	25,289.01
1,377.90	365.92	1,412.67	438.98	3,415.97
708.50	240.53	1,365.31	273.97	10,900.06

RESOURCES.

TABLE 1 (CONTINUED).—*Assessed Valuation, Taxes for Year ending March 31, 1894, and Receipts for Year ending Feb. 15, 1894, by towns and cities.*

TOWN.	COUNTY.	Assessed Valuation.	Taxes committed for collection.	Receipts from all sources.
North Hampton	Rockingham.	$598,745	$6,575.14	$11,425.27
Northumberl'nd	Coös.....	572,949	8,572.33	13,575.79
Northwood.....	Rockingham.	515,898	8,746.12	30,243.68
Nottingham....	Rockingham.	345,598	3,665.11	7,730.28
Orange.....	Grafton.....	67,339	1,452.33	2,472.15
Orford.....	Grafton.....	402,329	6,039.48	9,543.98
Ossipee.....	Carroll.....	510,170	13,394.53	15,963.41
Pelham.....	Hillsboro'....	485,570	4,872.69	7,565.48
Pembroke.....	Merrimack ..	1,205,370	12,053.70	24,829.06
Peterborough ..	Hillsboro'....	1,458,155	16,768.78	39,161.38
Piermont.....	Grafton.....	361,980	5,787.59	8,912.27
Pittsburg.....	Coös.....	363,705	6,786.74	6,551.98
Pittsfield.....	Merrimack ..	1,128,020	21,474.11	32,052.25
Plainfield	Sullivan.....	529,792	7,734.96	12,078.11
Plaistow	Rockingham.	325,427	4,484.68	6,611.63
Plymouth.....	Grafton.....	764,888	16,859.84	25,802.82
Portsmouth	Rockingham.	7,833,490	143,566.00	530,921.64
Randolph.....	Coös.....	63,300	1,553.00	1,437.48
Raymond.....	Rockingham.	363,474	5,486.59	33,719.15
Richmond.....	Cheshire.....	220,372	3,215.35	5,348.05
Rindge.....	Cheshire.....	517,964	6,741.75	12,866.25
Rochester.....	Strafford.....	3,660,656	67,500.00	179,231.21
Rollinsford.....	Strafford	1,183,721	14,753.23	31,383.20
Roxbury	Cheshire.....	69,012	717.72	1,336.43
Rumney.....	Grafton.....	293,551	1,986.78	9,382.01
Rye.....	Rockingham.	589,675	8,664.91	14,531.41
Salem.....	Rockingham.	641,230	10,900.86	15,487.54
Salisbury.....	Merrimack...	295,462	5,761.50	10,815.79
Sanbornton.....	Belknap.....	357,020	4,855.47	12,452.08
Sandown.....	Rockingham.	168,526	3,077.28	3,855.40
Sandwich.....	Carroll.....	459,017	12,485.26	14,368.09
Seabrook.....	Rockingham.	255,721	6,284.75	12,295.70
Sharon.....	Hillsboro' ...	67,893	1,126.07	1,675.92
Shelburne.....	Coös	127,748	2,019.83	4,429.20
Somersworth...	Strafford.....	2,942,196	56,066.01	78,820.72
South Hampton	Rockingham.	221,600	3,257.52	3,612.54
So. Newmarket	Rockingham.	378,044	5,698.77	9,114.00
Springfield.....	Sullivan.....	154,847	4,054.12	8,340.42
Stark.....	Coös.....	290,588	4,358.82	5,611.96
Stewartstown...	Coös.....	359,899	4,859.69	8,369.90

DISBURSEMENTS.

TABLE 1 (CONTINUED).—*School, Highway, Pauper, and Miscellaneous Expenses for Year ending Feb. 15, 1894, by towns and cities.*

Teachers' Salaries.	Other School expenses.	Highways.	Paupers.	Miscellaneous.
$1,350.00	$534.91	$2,604.36	$107.50	$6,364.46
1,342.10	1,655.64	1,477.29	56.45	6,698.33
1,902.17	408.20	5,695.91	156.38	22,027.67
1,494.00	296.97	2,499.51	14.00	3,288.37
269.05	93.92	774.95	103.45	944.20
1,727.00	973.91	2,366.89	616.42	2,641.67
1,801.10	704.50	5,126.34	479.41	6,929.82
1,240.00	255.82	1,732.47	28.65	3,258.94
2,550.37	685.00	3,414.14	4,106.22	12,645.38
4,987.79	642.42	4,100.00	213.20	28,615.07
1,091.00	498.84	1,614.58	43.12	5,363.72
764.00	1,022.71	1,822.79	385.85	2,556.63
3,646.98	3,729.77	4,891.39	768.81	18,248.33
1,783.00	307.03	2,399.43	1,000.60	5,883.41
1,139.50	382.37	1,488.66	295.74	3,278.53
3,928.28	2,275.26	3,738.35	1,878.45	13,520.94
23,592.25	8,390.86	6,141.50	9,197.29	470,398.83
378.35	86.10	438.71		301.73
1,500.00	335.00	3,898.84	473.55	27,371.32
798.25	508.30	1,727.77	238.95	1,915.69
1,246.25	620.97	4,323.86	273.54	5,400.47
19,169.72	863.79	12,012.95	1,780.89	144,180.80
2,300.00	1,549.75	2,945.65	28.00	22,817.82
222.00	49.88	462.30		517.90
1,615.48	2,959.92	3,043.64	589.27	956.22
1,368.15	537.09	4,413.71	328.69	7,224.66
2,383.90	956.11	4,347.58	1,174.24	5,385.04
1,119.53	1,124.39	2,751.87	662.71	4,818.13
1,691.94	291.00	2,529.79	102.80	4,471.88
673.56	53.29	648.82	400.35	1,701.20
1,201.00	589.60	2,927.81	239.15	8,723.74
2,214.46	550.55	956.13	1,801.64	6,662.89
236.00	46.00	485.00		765.00
484.50	186.08	2,675.37	74.39	517.00
10,447.22	8,036.04	4,200.90	517.37	48,600.97
653.02	52.53	631.45		2,110.49
1,550.55	76.75	1,509.53	293.23	5,454.35
552.48	399.64	1,977.21	307.89	5,099.96
1,271.00	517.44	883.01	423.65	2,461.93
780.98	299.41	1,542.94	782.35	4,446.72

RESOURCES.

TABLE 1 (CONTINUED).—*Assessed Valuation, Taxes for Year ending March 31, 1894, and Receipts for Year ending Feb. 15, 1894, by towns and cities.*

TOWN.	COUNTY.	Assessed Valuation.	Taxes committed for collection.	Receipts from all sources.
Stoddard	Cheshire	$170,020	$2,720.37	$6,843.14
Strafford	Strafford	479,825	8,829.28	16,742.61
Stratford	Coös	400,400	5,039.19	13,263.63
Stratham	Rockingham	545,236	5,388.30	9,161.30
Sullivan	Cheshire	139,170	2,677.14	4,732.58
Sunapee	Sullivan	358,516	5,938.72	13,827.49
Surry	Cheshire	151,480	1,512.85	3,636.13
Sutton	Merrimack	351,102	5,187.41	9,555.35
Swanzey	Cheshire	729,420	8,071.68	16,244.47
Tamworth	Carroll	373,642	8,666.48	10,918.57
Temple	Hillsboro'	175,128	2,854.58	4,632.34
Thornton	Grafton	187,812	6,672.51	12,129.89
Tilton	Belknap	753,567	16,677.96	29,409.83
Troy	Cheshire	489,724	6,759.33	14,737.95
Tuftonborough	Carroll	261,060	7,476.55	8,606.99
Unity	Sullivan	233,321	3,873.09	5,829.74
Wakefield	Carroll	604,128	9,151.75	17,187.44
Walpole	Cheshire	1,526,758	22,110.37	36,519.49
Warner	Merrimack	692,955	9,723.14	19,842.86
Warren	Grafton	274,790	3,809.69	7,526.96
Washington	Sullivan	289,292	4,050.17	6,168.20
Waterville	Grafton	49,462	583.60	1,337.27
Weare	Hillsboro'	688,504	9,547.80	21,584.45
Webster	Merrimack	286,448	2,886.51	5,733.82
Wentworth	Grafton	207,970	3,801.16	6,166.50
Wentworth's Lo.	Coös	22,162		
Westmoreland	Cheshire	502,317	5,225.98	11,041.95
Whitefield	Coös	684,286	11,734.57	22,296.09
Wilmot	Merrimack	235,600	3,805.28	7,907.35
Wilton	Hillsboro'	972,614	14,605.71	28,054.93
Winchester	Cheshire	1,436,069	20,682.29	33,690.50
Windham	Rockingham	360,090	4,753.19	7,176.52
Windsor	Hillsboro'	36,989	394.08	872.59
Wolfeborough	Carroll	1,179,646	26,748.17	38,958.68
Woodstock	Grafton	151,328	3,658.24	6,387.66

DISBURSEMENTS.

TABLE 1 (CONCLUDED).—*School, Highway, Pauper, and Miscellaneous Expenses for Year ending Feb. 15, 1894, by towns and cities.*

Teachers' salaries.	Other school expenses.	Highways.	Paupers.	Miscellaneous.
$555.00	$40.70	$1,026.08	$242.72	$4,795.03
1,967.52	316.75	6,428.12	83.07	6,650.60
1,660.37	808.19	6,004.76	554.23	2,527.07
905.50	582.27	2,394.60	104.00	4,455.79
777.00	303.05	1,475.68		1,904.97
1,381.59	876.43	1,699.45	101.29	6,727.62
504.50	108.14	478.67	109.82	1,227.32
1,099.40	271.29	2,864.96	1,047.59	2,596.38
3,131.35	749.90	4,279.42	688.60	6,394.70
1,233.65	921.65	2,766.30	230.74	4,445.31
667.50	723.81	1,128.04	78.00	1,907.34
828.18	810.81	2,169.14	237.22	5,830.75
2,695.57	252.11	3,597.23	727.05	21,087.71
1,140.00	834.37	1,723.33	395.96	9,806.86
952.50	392.57	2,522.09	16.00	4,399.74
894.30	353.51	1,735.95	3.00	2,742.68
2,487.00	916.70	3,541.97	175.72	7,683.19
2,731.75	1,235.71	4,142.37	1,868.70	26,540.96
2,092.00	1,103.74	4,508.82	669.78	10,786.58
1,124.00	329.59	1,724.79	235.16	4,105.93
812.11	314.32	1,606.52	123.72	2,325.69
44.00	7.77	234.02		231.74
2,451.25	1,076.45	5,487.50	745.73	8,083.25
1,093.11	72.50	1,021.35	127.00	2,310.75
899.25	241.30	1,689.49	217.43	1,951.91
1,485.70	754.28	2,748.30	327.09	5,708.28
5,044.35	433.00	3,083.53	1,663.65	9,322.04
888.00	449.59	3,493.01	337.63	2,068.16
2,435.00	1,256.83	10,467.57	25.85	13,479.09
4,808.37	1,608.20	3,888.03	4,411.47	18,070.00
983.50	265.70	1,943.92	136.57	3,630.77
98.95	2.27	143.11		589.50
5,902.75	235.00	6,662.43	1,521.40	22,126.19
432.15	98.81	847.45	43.89	3,464.34

FINANCIAL.

TABLE 2.—*Indebtedness, Surplus, and Cash in Treasury for Year ending Feb. 15, 1894, by towns and cities.*

TOWN.	COUNTY.	Indebtedness.	Surplus.	Cash in treasury.
Acworth	Sullivan	$625.57		$7,764.33
Albany	Carroll		$1,106.18	158.51
Alexandria	Grafton		7.16	34.83
Allenstown	Merrimack		552.83	320.07
Alstead	Cheshire	2,211.17		2,413.65
Alton	Belknap	2,017.29		43.90
Amherst	Hillsboro'		162.32	185.58
Andover	Merrimack		5,426.12	1,878.20
Antrim	Hillsboro'	17,133.04		1,574.24
Ashland	Grafton	1,572.01		916.92
Atkinson	Rockingham		437.76	213.19
Auburn	Rockingham	2,431.63		14.00
Barnstead	Belknap	1,616.37		3,761.13
Barrington	Strafford	12,695.30		897.38
Bartlett	Carroll	1,495.19		419.19
Bath	Grafton	1,483.45		7,374.78
Bedford	Hillsboro'		356.98	330.55
Belmont	Belknap	9,522.27		344.62
Bennington	Hillsboro'	4,935.08		1,051.79
Benton	Grafton		11.86	11.86
Berlin	Coös	110,387.87		18,378.37
Bethlehem	Grafton	8,420.94		160.35
Boscawen	Merrimack	1,560.46		624.54
Bow	Merrimack		1,252.43	1,199.43
Bradford	Merrimack		2,426.36	2,410.73
Brentwood	Rockingham		103.68	389.92
Bridgewater	Grafton	1,517.04		577.52
Bristol	Grafton	779.49		1,701.85
Brookfield	Carroll	388.98		327.29
Brookline	Hillsboro'		1,838.40	614.57
Campton	Grafton	10,508.96		1,530.02
Canaan	Grafton	1,710.85		114.04
Candia	Rockingham	30.93		226.69
Canterbury	Merrimack		973.43	1,977.59
Carroll	Coös	1,532.40		900.40
Centre Harbor	Belknap		1,196.24	20.75
Charlestown	Sullivan	1,310.00		3.88
Chatham	Carroll		240.40	207.40
Chester	Rockingham		465.34	271.79
Chesterfield	Cheshire	2,695.32		817.27

FINANCIAL.

TABLE 2 (CONTINUED).—*Indebtedness, Surplus, and Cash in Treasury for Year ending Feb. 15, 1894, by towns and cities.*

TOWN.	COUNTY.	Indebtedness.	Surplus.	Cash in treasury.
Chichester	Merrimack	$421.72		$1,650.45
Claremont	Sullivan	101,778.60		1,569.89
Clarksville	Coös		$125.71	99.92
Colebrook	Coös		2,180.65	2,180.65
Columbia	Coös		64.78	200.19
Concord	Merrimack	67,962.25		51,116.31
Conway	Carroll	14,569.45		5,773.46
Cornish	Sullivan		304.09	1.70
Croydon	Sullivan	391.97		25.24
Dalton	Coös	16,939.13		373.85
Danbury	Merrimack		1,674.89	1,387.29
Danville	Rockingham	2,585.48		197.16
Deerfield	Rockingham	2,634.96		2,098.95
Deering	Hillsboro'	658.88		844.62
Derry	Rockingham	12,046.53		5,899.95
Dorchester	Grafton	11,868.20		218.06
Dover	Strafford	600,633.94		28,593.28
Dublin	Cheshire		1,789.81	1,734.63
Dummer	Coös	3,347.96		71.57
Dunbarton	Merrimack		621.61	286.20
Durham	Strafford		1,273.96	1,162.21
East Kingston	Rockingham		153.72	247.63
Easton	Grafton		957.27	377.75
Eaton	Carroll		324.41	394.79
Effingham	Carroll		327.70	1,136.97
Ellsworth	Grafton		551.80	551.80
Enfield	Grafton	626.43		37.46
Epping	Rockingham	23,418.41		900.84
Epsom	Merrimack	1,395.69		1,304.87
Errol	Coös		977.98	1,155.74
Exeter	Rockingham	89,568.36		12,443.88
Farmington	Strafford	45,078.07		1,734.15
Fitzwilliam	Cheshire	1,000.00		13.89
Francestown	Hillsboro'	423.20		146.58
Franconia	Grafton	2,898.25		540.27
Franklin	Merrimack	72,866.77		5,138.48
Freedom	Carroll		298.34	172.99
Fremont	Rockingham		894.20	1,130.68
Gilford	Belknap		692.93	1,165.04
Gilmanton	Belknap	227.10		3,767.26

FINANCIAL.

TABLE 2 (CONTINUED).—*Indebtedness, Surplus, and Cash in Treasury for Year ending Feb. 15, 1894, by towns and cities.*

TOWN.	COUNTY.	Indebtedness.	Surplus.	Cash in treasury.
Gilsum	Cheshire	$928.78		$549.78
Goffstown	Hillsboro'	7,422.72		1,562.57
Gorham	Coös	666.60		323.87
Goshen	Sullivan		$676.18	159.51
Grafton	Grafton		2,721.12	1,071.81
Grantham	Sullivan	3,288.36		.61
Greenfield	Hillsboro'	2,817.79		130.20
Greenland	Rockingham	9,500.00		1,036.99
Greenville	Hillsboro'	884.28		906.94
Groton	Grafton	629.25		1,224.13
Hampstead	Rockingham		1,009.76	449.86
Hampton	Rockingham	6,511.82		64.67
Hampton Falls	Rockingham	533.50		
Hancock	Hillsboro'	1,877.52		750.45
Hanover	Grafton		7,822.61	2,278.98
Harrisville	Cheshire	11,613.95		1,386.05
Hart's Location	Carroll		150.00	150.00
Haverhill	Grafton		2,076.53	1,198.20
Hebron	Grafton		446.29	399.08
Henniker	Merrimack	4,386.55		1,423.73
Hill	Merrimack		522.00	107.00
Hillsboro'	Hillsboro'		68.87	857.97
Hinsdale	Cheshire	3,994.00		125.33
Holderness	Grafton		492.60	529.48
Hollis	Hillsboro'	8,180.71		
Hooksett	Merrimack		3,927.65	3,461.98
Hopkinton	Merrimack		3,024.09	4,024.09
Hudson	Hillsboro'		3,199.36	1,527.11
Jackson	Carroll	500.00		480.89
Jaffrey	Cheshire	9,721.32		332.63
Jefferson	Coös	2,996.10		
Keene	Cheshire	260,671.55		11,021.01
Kensington	Rockingham		219.20	615.93
Kingston	Rockingham	5,319.05		245.08
Laconia	Belknap	74,006.35		9,015.12
Lancaster	Coös	2,965.01		4,275.39
Landaff	Grafton		589.24	64.68
Langdon	Sullivan	621.91		596.13
Lebanon	Grafton	25,319.01		7,718.68
Lee	Strafford		1,410.59	737.75

FINANCIAL.

TABLE 2 (CONTINUED).—*Indebtedness, Surplus, and Cash in Treasury for Year ending Feb. 15, 1894, by towns and cities.*

TOWN.	COUNTY.	Indebtedness.	Surplus.	Cash in treasury.
Lempster	Sullivan		$580.38	$372.56
Lincoln	Grafton		101.09	101.09
Lisbon	Grafton	$5,360.36		4,032.73
Litchfield	Hillsboro'	89.45		351.27
Littleton	Grafton		643.27	1,439.66
Livermore	Grafton			
Londonderry	Rockingham	1,416.30		454.24
Loudon	Merrimack	4,387.21		771.55
Lyman	Grafton	415.59		64.35
Lyme	Grafton		265.06	64.63
Lyndeborough	Hillsboro'	7,015.28		1,126.46
Madbury	Strafford		1,1 08	1,036.26
Madison	Carroll	777.12		175.61
Manchester	Hillsboro'	1,214,350.00		116,775.41
Marlborough	Cheshire	3,392.76		2,734.62
Marlow	Cheshire		380.65	36.36
Mason	Hillsboro'		87.63	899.80
Meredith	Belknap		8,201.53	2,837.99
Merrimack	Hillsboro'	626.03		1,021.32
Middleton	Strafford		1,322.81	791.47
Milan	Coös	6,055.46		180.58
Milford	Hillsboro'	19,114.08		1,801.02
Milton	Strafford		1,111.85	1,111.85
Monroe	Grafton	9,670.09		
Mont Vernon	Hillsboro'	1,981.96		994.45
Moultonboro'	Carroll		2,808.61	1,837.61
Nashua	Hillsboro'	531,490.35		2,639.32
Nelson	Cheshire	467.13		435.76
New Boston	Hillsboro'	6,925.51		530.30
Newbury	Merrimack	805.30		757.95
Newcastle	Rockingham	22,409.41		579.92
New Durham	Strafford	2,131.07		398.59
New Hampton	Belknap		1,118.14	1,102.14
Newington	Rockingham	500.45		499.55
New Ipswich	Hillsboro'	2,198.52		3,801.48
New London	Merrimack		530.21	381.66
Newmarket	Rockingham	14,168.84		1,999.37
Newport	Sullivan	101,259.40		715.61
Newton	Rockingham	11,146.64		
Northfield	Merrimack		811,37	799.82

FINANCIAL.

TABLE 2 (CONTINUED).—*Indebtedness, Surplus, and Cash in Treasury for Year ending Feb. 15, 1894, by towns and cities.*

TOWN.	COUNTY.	Indebtedness.	Surplus.	Cash in treasury.
North Hampton	Rockingham.	$840.96	.....	$464.04
Northumb'rl'nd	Coös.	.....	$1,903.54	2,345.98
Northwood	Rockingham.	13,164.83	.....	53.35
Nottingham	Rockingham.	3,833.27	.....	137.43
Orange	Grafton.	.....	865.30	286.58
Orford	Grafton.	2,431.94	.....	1,218.09
Ossipee	Carroll	.....	2,003.96	922.24
Pelham	Hillsboro'.	.....	661.12	1,049.60
Pembroke	Merrimack	572.05	.....	1,427.95
Peterborough	Hillsboro'.	42,300.00	.....	602.90
Piermont	Grafton.	1,216.01	.....	301.01
Pittsburg	Coös.	1,507.97	.....	.....
Pittsfield	Merrimack	52,839.80	.....	766.97
Plainfield	Sullivan.	3,061.17	.....	704.64
Plaistow	Rockingham.	733.87	.....	26.83
Plymouth	Grafton.	.....	629.99	461.54
Portsmouth	Rockingham.	170,234.12	.....	13,200.91
Randolph	Coös.	303.74	.....	232.59
Raymond	Rockingham.	22,530.34	.....	140.44
Richmond	Cheshire.	363.08	.....	159.09
Rindge	Cheshire.	.....	1,080.71	1,001.16
Rochester	Strafford.	72,169.57	.....	1,223.06
Rollinsford	Strafford.	10,734.22	.....	1,741.98
Roxbury	Cheshire.	.....	200.00	84.35
Rumney	Grafton.	1,111.84	.....	217.48
Rye	Rockingham.	723.84	.....	659.11
Salem	Rockingham.	12,117.90	.....	1,240.67
Salisbury	Merrimack	2,347.93	.....	339.16
Sanbornton	Belknap.	.....	3,609.71	3,364.67
Sandown	Rockingham.	.....	705.09	378.18
Sandwich	Carroll	24,124.91	.....	886.79
Seabrook	Rockingham.	6,459.37	.....	110.03
Sharon	Hillsboro'.	280.00	.....	143.92
Shelburne	Coös.	686.57	.....	491.86
Somersworth	Strafford.	76,700.00	.....	7,018.22
South Hampton	Rockingham.	1,457.79	.....	165.05
So. Newmarket	Rockingham.	129.46	.....	229.59
Springfield	Sullivan.	12,571.52	.....	3.25
Stark	Coös.	1,171.35	.....	54.93
Stewartstown	Coös.	7,057.51	.....	517.50

FINANCIAL.

TABLE 2 (CONCLUDED).—*Indebtedness, Surplus, and Cash in Treasury for Year ending Feb. 15, 1894, by towns and cities.*

TOWN.	COUNTY.	Indebtedness.	Surplus.	Cash in treasury.
Stoddard	Cheshire	$1,027.11		$183.61
Strafford	Strafford	2,552.40		1,296.55
Stratford	Coös	3,900.00		1,709.01
Stratham	Rockingham		$21.29	719.14
Sullivan	Cheshire	808.53		271.88
Sunapee	Sullivan	10,512.11		3,041.11
Surry	Cheshire		1,207.68	1,207.68
Sutton	Merrimack		1,980.49	1,675.73
Swanzey	Cheshire		335.17	1,000.50
Tamworth	Carroll	15.96		1,320.92
Temple	Hillsboro'		255.38	127.65
Thornton	Grafton	5,869.65		2,253.79
Tilton	Belknap	822.34		1,050.16
Troy	Cheshire	406.22		837.43
Tuftonborough	Carroll	5,089.78		324.09
Unity	Sullivan		283.46	100.30
Wakefield	Carroll		1,535.73	2,382.86
Walpole	Cheshire	8,188.12		
Warner	Merrimack	25,131.15		681.94
Warren	Grafton		1,596.18	7.49
Washington	Sullivan		1,244.58	985.84
Waterville	Grafton		819.74	819.74
Weare	Hillsboro'		834.97	3,740.27
Webster	Merrimack		1,684.26	1,109.11
Wentworth	Grafton		1,637.69	1,167.12
Westmoreland	Cheshire	2,939.73		18.30
Whitefield	Coös	4,308.27		2,749.52
Wilmot	Merrimack	4,051.58		670.96
Wilton	Hillsboro'	25,822.66		390.59
Winchester	Cheshire	20,100.00		904.43
Windham	Rockingham		647.02	216.06
Windsor	Hillsboro'		273.57	38.76
Wolfeborough	Carroll	111,835.40		2,510.91
Woodstock	Grafton	6,709.27		1,501.02

RESOURCES.—BELKNAP COUNTY.

TABLE 3.—*Assessed Valuation and Taxes for Year ending March 31, 1894, and Receipts for Year ending Feb. 15, 1894 by towns and cities.*

TOWN.	Assessed Valuation.	Taxes committed for collection.	Receipts from all sources.
Alton	$582,736	$12,354.00	$23,758.80
Barnstead	516,028	7,655.26	16,052.21
Belmont	507,754	7,868.38	12,597.16
Centre Harbor	242,242	2,622.05	4,583.45
Gilford	355,368	7,306.66	10,097.42
Gilmanton	533,404	12,557.57	19,484.87
Laconia	4,419,312	74,923.30	144,081.60
Meredith	608,843	12,885.57	18,917.35
New Hampton	301,137	5,419.18	9,040.25
Sanbornton	357,020	4,855.47	12,452.08
Tilton	753,567	16,677.96	29,409.83
	$9,177,111	$165,125.40	$300,475.00

DISBURSEMENTS.—BELKNAP COUNTY.

TABLE 3 (CONTINUED).—*School, Highway, Pauper, and Miscellaneous Expenses for Year ending Feb. 15, 1894.*

Teachers' Salaries.	Other school expenses.	Highways.	Paupers.	Miscellaneous.
$2,055.60	$2,585.77	$4,938.64	$216.70	$13,918.16
2,186.04	233.01	1,148.89	306.24	8,416.90
1,461.95	348.36	3,926.09	481.76	6,034.38
780.75	99.23	1,686.48	20.75	1,975.47
1,240.00	650.00	2,117.56	162.15	4,762.67
1,072.80	404.08	5,439.54	225.95	8,575.24
13,260.91	15,051.43	23,603.14	500.28	82,650.72
1,309.98	800.65	4,350.03	415.14	9,203.56
1,248.77	720.00	2,784.00	30.00	3,155.34
1,691.94	291.00	2,529.79	102.80	4,471.88
2,695.57	252.11	3,597.23	727.05	21,087.71
$29,004.31	$21,435.64	$56,121.39	$3,188.85	$164,252.03

RESOURCES.—CARROLL COUNTY.

TABLE 4.—*Assessed Valuation and Taxes for Year ending March 31, 1894, and Receipts for Year ending Feb. 15. 1894, by towns and cities.*

TOWN.	Assessed Valuation.	Taxes committed for collection.	Receipts from all sources.
Albany	$78,122	$2,753.85	$3,531.63
Bartlett	351,614	7,919.57	10,667.24
Brookfield	128,580	2,185.96	3,400.26
Chatham	92,689	1,956.87	1,956.87
Conway	844,384	18,708.25	26,197.91
Eaton	136,672	2,882.90	4,979.66
Effingham	229,928	4,058.69	6,033.48
Freedom	266,397	4,962.84	6,234.28
Hart's Location	32,820	424.18	400.42
Jackson	242,862	6,736.66	4,843.22
Madison	146,468	3,514.71	5,183.06
Moultonborough	351,137	8,909.75	9,850.46
Ossipee	510,170	13,394.53	15,963.41
Sandwich	459,017	12,485.26	14,368.09
Tamworth	373,642	8,666.48	10,918.57
Tuftonborough	261,060	7,476.55	8,606.99
Wakefield	604,128	9,151.75	17,187.44
Wolfeborough	1,179,646	26,748.17	38,958.68
	$6,289,336	$142,936.97	$189,281.67

DISBURSEMENTS.—CARROLL COUNTY.

TABLE 4 (CONTINUED).—*School, Highway, Pauper, and Miscellaneous Expenses for Year ending Feb. 15, 1894.*

Teachers' Salaries.	Other school expenses.	Highways.	Paupers.	Miscellaneous.
$471.21	$889.96	$897.30		$1,114.65
821.00	493.76	3,303.66	$296.48	5,333.15
366.00	54.43	1,379.07		1,273.47
634.66	134.16	755.20		225.45
3,295.35	984.59	3,662.68	238.61	12,243.22
628.84	118.66	1,108.08	5.50	2,723.79
1,042.02	202.36	1,089.78	319.81	2,242.54
1,086.62	347.83	1,549.06	21.00	3,056.78
66.00	25.00			159.42
681.52	1,370.51	1,219.80		1,090.50
642.91	477.16	1,387.73	14.00	2,485.65
1,238.00	246.54	2,084.48	212.90	4,230.93
1,801.10	704.50	5,126.34	479.41	6,929.82
1,201.00	389.60	2,927.81	239.15	8,723.74
1,233.65	921.65	2,766.30	230.74	4,445.31
952.50	392.57	2,522.09	16.00	4,399.74
2,487.00	916.70	3,541.97	175.72	7,683.19
5,902.75	235.00	6,662.43	1,521.40	22,126.19
$24,552.13	$8,904.98	$41,983.78	$3,770.72	$90,487.54

RESOURCES.—CHESHIRE COUNTY.

TABLE 5.—*Assessed Valuation and Taxes for Year ending March 31, 1894, and Receipts for Year ending Feb. 15, 1894, by towns and cities.*

TOWN.	Assessed Valuation.	Taxes committed for collection.	Receipts from all sources.
Alstead	$503,004	$6,288.51	$9,869.25
Chesterfield	637,639	9,601.44	15,101.88
Dublin	512,823	6,564.18	12,492.68
Fitzwilliam	470,912	6,263.12	11,287.31
Gilsum	288,122	3,317.14	6,327.41
Harrisville	320,941	5,959.03	9,084.58
Hinsdale	1,011,357	22,250.15	38,149.15
Jaffrey	827,158	8,735.45	23,181.92
Keene	6,464,708	89,401.00	186,665.13
Marlborough	636,185	8,909.75	16,737.59
Marlow	276,464	1,942.21	7,454.13
Nelson	135,379	2,097.25	4,152.21
Richmond	220,372	3,215.35	5,348.05
Rindge	517,964	6,741.75	12,866.25
Roxbury	69,012	717.72	1,336.43
Stoddard	170,020	2,720.37	6,843.14
Sullivan	139,170	2,677.14	4,732.58
Surry	151,480	1,512.85	3,636.13
Swanzey	729,420	8,071.68	16,244.47
Troy	489,724	6,759.33	14,737.95
Walpole	1,526,758	22,110.37	36,519.49
Westmoreland	502,317	5,225.98	11,041.95
Winchester	1,436,069	20,682.29	33,690.50
	$18,036,998	$251,764.05	$487,500.18

DISBURSEMENTS.—CHESHIRE COUNTY.

TABLE 5 (CONTINUED).—*School, Highway, Pauper, and Miscellaneous Expenses for Year ending Feb. 15, 1894.*

Teachers' Salaries.	Other school expenses.	Highways.	Paupers.	Miscellaneous.
$1,573.87	$588.11	$2,031.58	$455.43	$2,806.61
1,947.00	234.15	5,810.35	412.43	5,880.68
1,400.00	217.46	4,121.99	13.50	5,005.10
1,663.23	486.67	2,907.38	720.21	5,495.93
923.20	368.55	1,597.29	157.75	2,730.84
945.13	166.63	2,489.31	14.25	4,083.21
5,314.33	3,390.52	4,022.44	1,257.79	24,038.74
2,018.85	11,527.53	4,599.74	1,179.62	3,523.55
21,586.03	1,785.37	12,075.17	7,014.75	133,182.80
3,086.55	859.67	2,512.24	308.01	7,236.50
1,180.25	390.87	1,905.88	484.08	3,456.59
396.60	63.40	824.28	103.30	2,328.87
798.25	508.30	1,727.77	238.95	1,915.69
1,246.25	620.97	4,323.86	273.54	5,400.47
222.00	49.88	462.30		517.90
555.00	40.70	1,026.08	242.72	4,795.03
777.00	303.05	1,475.68		1,904.97
504.50	108.14	478.67	109.82	1,227.32
3,131.35	749.90	4,279.42	688.60	6,394.70
1,140.00	834.37	1,723.33	395.96	9,806.86
2,731.75	1,235.71	4,142.37	1,868.70	26,540.96
1,485.70	754.28	2,748.30	327.09	5,708.28
4,808.37	1,608.20	3,888.03	4,411.47	18,070.00
$59,135.21	$26,892.43	$71,173.46	$20,677.97	$282,051.60

RESOURCES.—Coös County.

TABLE 6.—*Assessed Valuation and Taxes for Year ending March 31, 1894, and Receipts for Year ending Feb. 15, 1894, by towns and cities.*

TOWN.	Assessed Valuation.	Taxes committed for collection.	Receipts from all sources.
Berlin	$1,390,940	$32,826.18	$164,757.26
Carroll	276,962	5,591.28	9,961.04
Clarksville	141,430	1,406.67	1,879.26
Colebrook	820,612	10,305.34	14,100.68
Columbia	267,093	3,158.74	4,633.69
Dalton	156,220	6,337.16	10,133.81
Dummer	142,206	3,199.68½	4,657.31
Errol	120,006	3,419.07	5,687.45
Gorham	478,780	9,066.04	12,557.76
Jefferson	305,212	6,736.66	10,550.25
Lancaster	1,334,964	26,300.00	39,046.59
Milan	280,146	7,283.79	13,039.98
Northumberland	572,949	8,572.23	13,575.79
Pittsburg	363,705	6,786.74	6,551.98
Randolph	63,300	1,553.00	1,437.48
Shelburne	127,748	2,019.83	4,429.20
Stark	290,588	4,358.82	5,611.96
Stewartstown	359,899	4,859.69	8,369.90
Stratford	400,400	5,039.19	13,263.63
Wentworth's Location	22,162		
Whitefield	684,286	11,734.57	22,296.09
	$8,599,608	$160,554.86	$366,541.11

DISBURSEMENTS.—COOS COUNTY.

TABLE 6 (CONTINUED).—*School, Highway, Pauper, and Miscellaneous Expenses for Year ending Feb. 15, 1894.*

Teachers' Salaries.	Other school expenses.	Highways.	Paupers.	Miscellaneous.
$3,793.87	$2,546.43	$43,537.51	$1,161.72	$95,339.36
764.00	3,660.63	1,361.83	127.00	3,147.18
348.00	229.09	568.95		633.30
3,490.22	617.04	2,082.75	491.19	5,238.83
1,387.03	439.81	899.86	102.00	1,604.80
809.70	571.89	1,905.68	248.35	6,224.34
794.41	88.19	824.38	6.82	2,871.94
342.61	303.31	914.51		2,971.28
3,829.08	204.65	2,033.82	181.15	5,985.19
1,290.65	3,878.55	2,337.89	196.43	2,846.73
1,856.10	808.40	5,998.19	801.00	25,307.51
1,166.50	173.02	1,629.80	75.00	9,815.08
1,342.10	1,655.64	1,477.29	56.45	6,698.33
764.00	1,022.71	1,822.79	385.85	2,556.63
378.35	86.10	438.71		301.73
484.50	186.08	2,675.37	74.39	517.00
1,271.00	517.44	883.01	423.65	2,461.93
780.98	299.41	1,542.94	782.35	4,446.72
1,660.37	808.19	6,004.76	554.23	2,527.07
5,044.35	433.00	3,083.54	1,663.65	9,322.04
$31,597.82	$18,529.58	$82,023.57	$7,331.23	$190,816.99

RESOURCES.—GRAFTON COUNTY.

TABLE 7.—*Assessed Valuation and Taxes for Year ending March 31, 1894, and Receipts for Year ending Feb. 15, 1894, by towns.*

TOWN.	Assessed Valuation.	Taxes committed for collection.	Receipts from all sources.
Alexandria	$223,200	$3,745.20	$7,111.26
Ashland	488,067	7,711.45	11,265.91
Bath	510,327	10,103.24	15,831.44
Benton	100,009	1,912.34	2,911.20
Bethlehem	721,347	13,185.87	17,921.51
Bridgewater	112,473	2,249.48	4,436.22
Bristol	666,070	13,654.14	21,688.30
Campton	346,030	8,649.75	17,032.56
Canaan	515,927	8,119.05	13,315.84
Dorchester	115,170	3,743.02	7,132.34
Easton	119,420	1,492.96	2,233.51
Ellsworth	29,325	936.63	1,548.80
Enfield	587,185	9,722.19	18,188.94
Franconia	390,433	5,465.63	8,665.21
Grafton	287,020	5,357.61	7,745.31
Groton	117,062	3,244.83	4,671.17
Hanover	1,042,402	11,943.14	20,766.32
Haverhill	1,240,618	14,431.51	27,661.69
Hudson	88,696	1,623.22	2,295.08
Holderness	234,056	4,751.52	6,876.51
Landaff	224,188	2,683.92	4,758.51
Lebanon	2,267,524	39,652.53	75,043.64
Lincoln	124,513	1,170.42	1,685.64
Lisbon	991,889	18,638.76	27,058.48
Littleton	1,571,552	33,864.80	53,196.36
Livermore	99,310		
Lyman	188,672	2,907.37	4,467.09
Lyme	475,266	3,380.93	8,195.67
Monroe	293,252	3,464.74	5,678.98
Orange	67,339	1,452.33	2,472.15
Orford	402,329	6,039.48	9,543.98
Piermont	361,980	5,787.59	8,912.27
Plymouth	764,888	16,859.84	25,802.82
Rumney	293,551	1,986.78	9,382.01
Thornton	187,812	6,672.51	12,129.89
Warren	274,790	3,809.69	7,526.96
Waterville	49,462	583.60	1,337.27
Wentworth	207,970	3,801.16	6,166.50
Woodstock	151,328	3,658.24	6,387.66
	$16,932,452	$288,157.47	$489,045.00

DISBURSEMENTS.—GRAFTON COUNTY.

TABLE 7 (CONTINUED).—*School, Highway, Pauper, and Miscellaneous Expenses for Year ending Feb. 15, 1894.*

Teachers' Salaries.	Other school expenses.	Highways.	Paupers.	Miscellaneous.
$1,004.50	$106.98	$2,790.50	$520.26	$2,654.19
2,330.98	546.49	1,647.90	1,284.59	4,539.03
2,347.92	102.45	2,206.56	191.68	3,608.05
312.47	184.00	730.75	13.75	1,658.37
1,585.65	911.28	3,960.62	555.92	10,747.69
428.00	79.19	602.14	300.46	2,448.91
2,835.85	609.27	6,609.33	385.90	9,546.10
1,312.50	775.42	2,007.65	1,372.71	10,034.26
1,530.97	855.68	3,795.23	1,036.78	5,983.14
431.64	28.70	1,421.95	171.76	4,860.23
463.24	23.21	687.58		681.73
159.00	28.00	600.00		210.00
2,098.94	458.39	5,547.27	713.05	9,333.83
1,311.74	57.64	1,786.44	268.37	4,700.75
998.00	773.93	1,755.70	399.76	2,746.11
640.05	135.75	1,332.42	61.42	1,277.40
3,259.35	1,259.85	4,537.41	1,871.99	7,558.74
4,522.60	2,053.16	7,681.85	970.11	11,235.77
231.00	99.74	306.27	157.25	1,101.74
985.40	334.73	1,677.75	192.57	3,156.58
798.50	243.48	845.26	512.29	2,294.30
13,585.32	1,216.83	7,940.22	2,525.40	42,057.19
102.00		647.46	96.40	738.69
4,793.50	672.77	3,689.93	830.16	13,039.39
11,834.40	970.19	9,795.10	3,404.67	25,752.34
890.25	250.55	1,825.94	552.76	883.24
1,719.80	361.82	1,948.50	362.27	3,738.65
1,084.00	156.50	600.00	24.00	3,814.48
269.05	93.92	774.95	103.45	944.20
1,727.00	973.91	2,366.89	616.42	2,641.67
1,091.00	498.84	1,614.58	43.12	5,363.72
3,928.28	2,275.26	3,738.35	1,878.45	13,520.94
1,615.48	2,959.92	3,043.64	589.27	956.22
828.18	810.81	2,169.14	237.22	5,830.75
1,124.00	329.59	1,724.79	235.16	4,105.93
44.00	7.77	234.02		231.74
899.25	241.30	1,689.49	217.43	1,951.91
432.15	98.81	847.45	43.89	3,464.34
$75,555.96	$21,586.13	$97,181.03	$22,740.69	$229.412.32

RESOURCES.—HILLSBOROUGH COUNTY.

TABLE 8.—*Assessed Valuation and Taxes for Year ending March 31, 1894, and Receipts for Year ending Feb. 15, 1894, by towns and cities.*

TOWN.	Assessed Valuation.	Taxes committed for collection.	Receipts from all sources.
Amherst	$637,314	$8,271.21	$19,309.13
Antrim	545,782	10,949.30	34,512.20
Bedford	618,289	8,093.00	13,689.68
Bennington	229,357	6,807.54	8,257.79
Brookline	300,824	4,319.82	7,870.70
Deering	207,366	3,147.43	7,807.28
Francestown	406,156	5,655.46	8,396.08
Goffstown	1,145,126	13,688.51	31,233.55
Greenfield	262,486	4,122.45	8,775.23
Greenville	703,576	8,020.76	16,389.20
Hancock	324,564	3,883.87	8,690.62
Hillsborough	1,067,170	21,089.27	60,079.63
Hollis	632,840	7,911.15	12,934.67
Hudson	640,790	9,002.79	17,057.80
Litchfield	229,952	1,329.97	2,446.84
Lyndeborough	284,442	4,838.59	14,569.03
Manchester	27,444,142	507,640.81	1,374,336.09
Mason	315,416	3,788.49	5,902.52
Merrimack	573,106	7,185.57	13,461.18
Milford	1,764,982	30,000.54	71,439.07
Mont Vernon	294,598	3,829.61	9,075.54
Nashua	12,502,142	237,540.70	746,552.04
New Boston	582,868	7,637.84	21,578.48
New Ipswich	514,568	8,627.94	15,641.53
Pelham	485,570	4,872.69	7,565.48
Peterborough	1,458,155	16,768.78	39,161.38
Sharon	67,893	1,126.07	1,675.92
Temple	175,128	2,854.58	4,632.34
Weare	688,504	9,547.80	21,584.45
Wilton	972,614	14,605.71	28,054.93
Windsor	36,989	394.08	872.59
	$56,112,697	$977,552.33	$2,633,552.97

DISBURSEMENTS.—HILLSBOROUGH COUNTY.

TABLE 8 (CONTINUED).—*School, Highway, Pauper, and Miscellaneous Expenses for Year ending Feb. 15, 1894.*

Teachers' Salaries.	Other School expenses.	Highways.	Paupers.	Miscellaneous.
$2,568.00	$1,534.85	$2,956.40	$810.30	$11,254.00
1,949.75	1,358.84	3,277.84	83.00	26,268.53
1,981.60	896.64	4,314.58	272.43	5,893.88
822.27	364.66	1,878.46	156.59	3,984.02
888.60	224.44	2,047.38	55.07	4,040.64
1,006 44	261.93	1,819.17	98.12	3,770.00
1,391.28	213.72	1,819.72	223.44	4,601.34
4,326.25	1,279.11	5,028.68	540.48	18,496.46
1,230.00	500.00	2,283.33	194.79	4,436.91
1,317.50	597.17	1,166.99	543.09	11,857.51
1,193.80	1,503.79	1,830.28	178.10	3,234.20
1,691.35	1,082.19	31,353.18	528.49	24,566.45
1,721.80	822.61	4,080.73	150.50	6,159.03
1,937.75	1,023.00	3,837.43	729.72	8,002.79
351.94	93.13	808.25		842.25
1,310.62	851.55	2,065.04	119.25	9,096.11
60,233.00	28,580.34	283,867.60	17,429.00	867,450.74
1,700.00	182.41	1,656.14	51.00	1,413.17
2,040.20	337.08	3,314.02	691.89	6,056.67
5,690.67	1,897.04	6,569.03	967.90	54,513.41
722.50	442.00	4,802.13	351.51	1,762.95
35,419.42	19,384.86	62,692.22	18,720.01	607,696.21
2,203.00	625.95	8,005.65	296.98	9,916.60
1,752.50	509.09	3,976.60	876.80	4,725.06
1,240.00	255.82	1,732.47	28.65	3,258.94
4,987.79	642.42	4,100.00	213.20	28,615.07
236.00	46.00	485.00		765.00
667.50	723.81	1,128.04	78.00	1,907.34
2,451.25	1,076.45	5,487.50	745.73	8,083.25
2,435.00	1,256.83	10,467.57	25.85	13,479.09
98.95	2.27	143.11		589.50
$147,566.73	$68,570.00	$468,994.54	$45,159.89	$1,756,744.12

RESOURCES.—MERRIMACK COUNTY.

TABLE 9.—*Assessed Valuation and Taxes for Year ending March 31, 1894, and Receipts for Year ending Feb. 15, 1894, by towns and cities.*

TOWN.	Assessed Valuation.	Taxes committed for collection.	Receipts from all sources.
Allenstown	$648,332	$6,094.33	$10,713.62
Andover	461,490	5,552.68	14,113.41
Boscawen	661,566	10,442.78	19,066.03
Bow	420,483	4,188.97	10,126.80
Bradford	423,991	5,624.30	11,363.05
Canterbury	488,460	5,128.83	9,726.28
Chichester	295,846	4,734.89	10,045.31
Concord	10,894,907	204,585.27	476,235.23
Danbury	229,089	3,157.52	6,682.78
Dunbarton	346,248	3,785.88	8,855.66
Epsom	346,675	5,204.69	9,323.78
Franklin	2,353,710	37,660.50	80,364.40
Henniker	673,636	10,141.38	24,315.56
Hill	180,483	2,155.44	4,764.95
Hooksett	682,556	9,131.14	18,297.30
Hopkinton	872,223	14,106.64	24,408.66
Loudon	507,585	7,112.83	12,362.44
Newbury	271,188	2,723.24	6,946.94
New London	345,680	3,802.48	7,677.48
Northfield	499,436	6,049.75	14,288.19
Pembroke	1,205,370	12,053.70	24,829.06
Pittsfield	1,128,020	21,474.11	32,052.25
Salisbury	295,462	5,761.50	10,815.79
Sutton	351,102	5,187.41	9,555.35
Warner	692,955	9,723.14	19,842.86
Webster	286,448	2,886.51	5,733.82
Wilmot	235,600	3,805.28	7,907.35
	$25,798,541	$412,275.19	$890,414.35

DISBURSEMENTS.—MERRIMACK COUNTY.

TABLE 9 (CONTINUED).—*School, Highway, Pauper, and Miscellaneous Expenses for Year ending Feb. 15, 1894.*

Teachers' Salaries.	Other School expenses.	Highways.	Paupers.	Miscellaneous.
$1,497.90	$204.46	$1,522.29	$1,990.29	$5,178.61
2,400.00	173.37	3,671.78	225.38	5,764.68
1,362.72	1,743.28	3,174.20	956.80	11,204.49
1,206.00	861.50	1,930.98	67.47	4,861.42
1,329.25	325.20	2,879.78	446.20	3,971.89
1,226.75	578.49	2,168.55	332.67	3,442.23
870.00	593.82	1,728.36	631.57	4,571.11
53,745.10	770.00	34,433.43	5,157.61	331,012.78
788.80	515.49	2,649.09	215.56	1,126.55
1,395.83	135.05	1,514.81	101.25	5,422.52
1,436.93	292.02	1,884.50	1,215.26	3,190.20
10,443.00	5,000.16	7,430.86	2,222.65	50,129.25
3,813.00	1,322.48	4,922.12	385.66	12,448.57
978.09	280.69	1,572.86	130.41	1,695.90
1,788.00	2,883.02	3,399.01	1,040.23	5,815.06
2,439.10	1,273.50	5,315.41	409.20	10,947.36
1,767.51	292.47	1,721.35	118.30	7,691.26
576.23	312.72	2,036.67	617.00	2,646.37
1,071.45	280.70	2,038.27	274.23	3,631.17
708.50	240.53	1,365.31	273.97	10,900.06
2,550.37	685.00	3,414.14	4,106.22	12,645.38
3,646.98	3,729.77	4,891.39	768.81	18,248.33
1,119.53	1,124.39	2,751.87	662.71	4,818.13
1,099.40	271.29	2,864.96	1,047.59	2,596.38
2,092.00	1,103.74	4,508.82	669.78	10,786.58
1,093.11	72.50	1,021.35	127.00	2,310.75
888.00	449.59	3,493.01	337.63	2,068.16
$103,333.55	$25,515.23	$110,215.17	$24,531.45	$539,125.19

RESOURCES.—ROCKINGHAM COUNTY.

TABLE 10.—*Assessed Valuation and Taxes for Year ending March 31, 1894, and Receipts for Year ending Feb. 15, 1894, by towns and cities.*

TOWN.	Assessed Valuation.	Taxes committed for collection.	Receipts from all sources.
Atkinson	$297,442	$3,569.31	$4,251.04
Auburn	290,581	3,744.69	9,584.91
Brentwood	309,168	3,326.29	5,222.16
Candia	346,975	5,186.77	10,729.79
Chester	372,101	4,668.59	7,389.07
Danville	203,006	2,926.42	4,484.77
Deerfield	456,416	8,965.05	18,096.39
Derry	1,108,089	19,816.53	35,497.61
East Kingston	232,202	4,328.55	8,429.81
Epping	712,101	10,756.15	27,835.28
Exeter	2,873,099	59,712.18	102,255.37
Fremont	250,100	3,101.35	5,450.10
Greenland	370,424	4,510.65	8,289.25
Hampstead	347,686	4,175.83	7,312.14
Hampton	647,915	8,104.55	10,213.08
Hampton Falls	289,346	3,647.18	4,333.10
Kensington	260,106	3,573.63	4,878.85
Kingston	356,210	6,337.33	7,658.00
Londonderry	522,400	7,848.00	21,026.29
Newcastle	211,870	4,121.92	7,238.69
Newington	224,927	2,143.54	4,920.90
Newmarket	1,275,120	22,085.47	30,289.30
Newton	382,437	6,978.46	7,011.44
North Hampton	598,745	6,575.14	11,425.27
Northwood	515,898	8,746.12	30,243.68
Nottingham	345,598	3,665.11	7,730.28
Plaistow	325,427	4,484.68	6,611.63
Portsmouth	7,833,490	143,566.00	530,921.64
Raymond	363,474	5,486.59	33,719.15
Rye	589,675	8,664.91	14,531.41
Salem	641,230	10,900.86	15,487.54
Sandown	168,526	3,077.28	3,855.40
Seabrook	255,721	6,284.75	12,295.70
South Hampton	221,600	3,257.52	3,612.54
South Newmarket	378,044	5,698.77	9,114.00
Stratham	545,236	5,388.30	9,161.30
Windham	369,090	4,753.19	7,176.52
	$25,482,475	$420,177.66	$1,028,283.40

DISBURSEMENTS.—ROCKINGHAM COUNTY.

TABLE 10 (CONTINUED).—*School, Highway, Pauper, and Miscellaneous Expenses for Year ending Feb. 15, 1894.*

Teachers' Salaries.	Other school expenses.	Highways.	Paupers.	Miscellaneous.
$908.48	$185.55	$1,251.90	$12.00	$1,679.92
1,171.04	121.00	2,172.62	14.20	6,092.05
1,090.60	48.00	1,790.47	78.99	1,824.18
1,502.30	721.33	2,042.77	718.54	5,518.16
1,411.00	574.68	2,091.65	380.36	2,659.59
1,025.47	68.41	739.41	278.77	2,176.57
1,791.50	240.82	3,841.29	1,176.72	8,947.11
3,525.93	1,544.42	5,305.42	925.86	18,296.03
773.10	1,194.66	858.80	104.00	5,251.62
2,353.10	784.45	2,654.98	899.35	20,242.56
8,000.00	2,473.26	8,259.05	2,746.04	68,333.14
822.00	189.75	945.74	71.50	2,290.43
1,263.00	985.12	2,141.30	357.03	2,505.81
1,080.00	230.78	1,503.77	83.35	3,964.38
1,259.40	320.78	3,367.27	195.29	5,005.67
1,116.90	246.73	1,168.12	2.00	1,799.35
726.00	135.04	1,288.10	57.85	2,055.93
1,772.33	246.55	2,025.35	184.49	3,184.20
1,934.00	748.41	4,032.08	361.82	13,495.74
453.00	303.44	464.44	25.13	5,412.76
357.50	122.85	750.98		3,190.02
3,713.15	1,925.89	4,065.12	181.50	18,404.25
1,377.90	365.92	1,412.67	438.98	3,415.97
1,350.00	534.91	2,604.36	107.50	6,364.46
1,902.17	408.20	5,695.91	156.38	22,027.67
1,494.00	296.97	2,499.51	14.00	3,288.37
1,139.50	382.37	1,488.66	295.74	3,278.53
23,592.25	8,390.86	6,141.50	9,197.29	470,398.83
1,500.00	335.00	3,898.84	473.55	27,371.32
1,368.15	537.09	4,413.71	328.69	7,224.66
2,383.90	956.11	4,347.58	1,174.24	5,385.04
673.56	53.29	648.82	400.35	1,701.20
2,214.46	550.55	956.13	1,801.64	6,662.89
653.02	52.53	631.45		2,110.49
1,550.55	76.75	1,509.53	293.23	5,454.35
905.50	582.27	2,394.60	104.00	4,455.79
983.50	265.70	1,943.92	136.57	3,630.77
$61,138.26	$27,200.44	$93,347.82	$23,775.93	$775,099.83

RESOURCES.—STRAFFORD COUNTY.

TABLE 11.—*Assessed Valuation and Taxes for Year ending March 31, 1894, and Receipts for Year ending Feb. 15, 1894, by towns and cities.*

TOWN.	Assessed Valuation.	Taxes committed for collection.	Receipts from all sources.
Barrington	$446,372	$13,531.94	$26,697.34
Dover	9,065,157	157,677.37	593,611.28
Durham	533,308	9,112.47	12,029.85
Farmington	1,341,875	32,947.90	45,870.56
Lee	302,700	4,036.00	8,211.92
Madbury	264,455	2,309.34	4,986.12
Middleton	101,213	1,336.83	3,890.36
Milton	578,410	12,145.06	21,019.01
New Durham	227,878	4,673.81	7,757.81
Rochester	3,660,656	67,500.00	179,231.21
Rollinsford	1,183,721	14,753.23	31,383.20
Somersworth	2,942,196	56,066.01	78,820.72
Strafford	479,825	8,829.28	16,742.61
	$21,127,766	$384,919.24	$1,030,251.99

DISBURSEMENTS.—STRAFFORD COUNTY.

TABLE 11 (CONTINUED).—*School, Highway, Pauper, and Miscellaneous Expenses for Year ending Feb. 15, 1894.*

Teachers' Salaries.	Other school expenses.	Highways.	Paupers.	Miscellaneous.
$1,878.00	$1,090.30	$3,225.66	$148.73	$19,457.27
22,984.48	8,217.95	18,063.85	2,163.25	513,588.47
2,376.12	1,330.07	3,109.41	21.75	4,030.29
4,814.64	1,978.71	14,447.65	105.19	22,790.22
891.00	473.72	1,636.02	76.67	4,396.76
743.42	72.95	1,234.32	2.50	1,896.67
348.00	363.04	787.79	28.00	1,572.06
4,171.42	4,794.02	3,881.51	219.17	6,841.04
998.86	419.72	2,629.65	108.95	3,202.04
19,169.72	863.79	12,012.95	1,780.89	144,180.80
2,300.00	1,549.75	2,945.65	28.00	22,817.82
10,447.22	8,036.04	4,200.90	517.37	48,600.97
1,967.52	316.75	6,428.12	83.07	6,650.60
$73,090.40	$29,506.81	$74,603.48	$5,283.54	$800,025.01

RESOURCES.—SULLIVAN COUNTY.

TABLE 12.—*Assessed Valuation and Taxes for Year ending March 31, 1894, and Receipts for Year ending Feb. 15, 1894, by towns and cities.*

TOWN.	Assessed Valuation.	Taxes committed for collection.	Receipts from all sources.
Acworth	$304,664	$5,120.15	$8,809.65
Charlestown	830,115	12,407.54	20,902.51
Claremont	3,038,630	53,175.68	79,922.63
Cornish	476,984	7,952.44	9,168.84
Croydon	209,692	3,145.45	5,175.31
Goshen	148,585	1,857.32	3,754.29
Grantham	139,417	2,919.00	4,138.83
Langdon	233,594	2,496.29	3,820.61
Lempster	180,013	3,324.57	6,384.76
Newport	1,436,614	28,877.28	43,270.32
Plainfield	529,792	7,734.96	12,078.11
Springfield	154,847	4,054.12	8,340.43
Sunapee	358,516	5,938.72	13,827.49
Unity	233,321	3,873.09	5,829.74
Washington	289,292	4,050.17	6,168.20
	$8,564,076	$146,926.78	$231,591.72

DISBURSEMENTS.—SULLIVAN COUNTY.

TABLE 12 (CONTINUED).—*School, Highway, Pauper, and Miscellaneous Expenses for Year ending Feb. 15, 1894.*

Teachers' Salaries.	Other school expenses.	Highways.	Paupers.	Miscellaneous.
$1,515.13	$71.00	$2,577.47	$290.24	$3,591.48
3,336.97	109.14	4,707.65	1,360.55	11,384.32
11,473.41	1,650.00	10,677.36	6,352.50	48,199.47
1,128.00	751.52	2,637.40	580.49	4,069.73
608.50	214.98	1,337.72	216.83	2,772.04
530.25	122.31	604.79	186.51	2,150.92
395.50	106.77	502.13	233.63	2,900.19
679.50	278.92	1,606.47	53.28	606.31
753.41	180.39	1,333.45	5.75	3,739.20
4,415.77	3,568.05	6,843.63	2,438.25	25,289.01
1,783.00	307.03	2,399.43	1,000.60	5,883.41
552.48	309.64	1,977.21	307.89	5,099.96
1,381.59	876.43	1,699.45	101.29	6,727.62
894.30	353.51	1,735.95	3.00	2,742.68
812.11	314.32	1,606.52	123.72	2,325.69
$30,259.92	$9,304.01	$42,246.63	$13,254.53	$127,482.03

RESOURCES.—RECAPITULATION.

TABLE 13.—*Assessed Valuation and Taxes for Year ending March 31, 1894, and Receipts for Year ending Feb. 15, 1894, by counties.*

COUNTY.	Assessed Valuation.	Taxes committed for collection.	Receipts from all sources.
Belknap	$9,177,111	$165,125.40	$300,475.00
Carroll	6,289,336	142,936.97	189,281.67
Cheshire	18,036,998	251,764.05	487,500.18
Coös	8,599,608	160,554.86	366,541.11
Grafton	16,932,452	288,157.47	489,045.00
Hillsboro'	56,112,697	977,552.33	2,633,552.97
Merrimack	25,798,541	412,275.19	890,414.35
Rockingham	25,482,475	420,177.66	1,028,283.40
Strafford	21,127,766	384,919.24	1,030,251.99
Sullivan	8,564,076	146,926.78	231,591.72
	$196,121,060	$3,350,389.95	$7,646,937.39

DISBURSEMENTS.—RECAPITULATION.

TABLE 13 (CONTINUED).—*School, Highway, Pauper, and Miscellaneous Expenses for Year ending Feb. 15, 1894, by counties.*

Teachers' Salaries.	Other school expenses.	Highways.	Paupers.	Miscellaneous.
$29,004.31	$21,435.64	$56,121.39	$3,188.85	$164,252.03
24,552.13	8,904.98	41,983.78	3,770.72	90,487.54
59,435.21	26,892.43	71,173.46	20,667.97	282,051.60
31,597.82	18,529.58	82,023.57	7,331.23	190,816.99
75,555.96	21,586.13	97,181.03	22,740.69	229,412.32
147,566.73	68,570.00	468,994.54	45,159.89	1,756,744.12
103,333.55	25,515.23	110,215.17	24,531.45	539,125.19
61,138.26	27,200.44	93,347.82	23,775.93	775,099.83
73,090.40	29,506.81	74,603.48	5,283.54	800,025.01
30,259.92	9,304.01	42,246.63	13,254.53	127,482.03
$635,534.29	$257,445.25	$1,137,890.87	$169,704.80	$4,955,496.66

FINANCIAL STATEMENT.—BELKNAP COUNTY.

TABLE 14.—*Indebtedness, Surplus, and Cash in Treasury for Year ending Feb. 15, 1894, by towns and cities.*

TOWN.	Indebtedness.	Surplus.	Cash in Treasury.
Alton	$2,017.29	.....	$43.90
Barnstead	1,616.37	.....	3,761.13
Belmont	9,522.27	.....	344.62
Center Harbor	.....	$1,196.24	20.75
Gilford	.....	692.93	1,165.04
Gilmanton	227.10	.....	3,767.26
Laconia	74,006.35	.....	9,015.12
Meredith	.....	8,201.53	2,837.99
New Hampton	.....	1,118.14	1,102.14
Sanbornton	.....	3,609.71	3,364.67
Tilton	822.34	.....	1,050.16
	$88,211.72	$14,818.55	$26,472.78

FINANCIAL STATEMENT.—CARROLL COUNTY.

TABLE 15.—*Indebtedness, Surplus, and Cash in Treasury for Year ending Feb. 15, 1894, by towns and cities.*

TOWN.	Indebtedness.	Surplus.	Cash in Treasury.
Albany	.....	$1,106.18	$158.51
Bartlett	$1,495.19	.....	419.19
Brookfield	327.29	.....	327.29
Chatham	.....	240.40	207.40
Conway	14,569.45	.....	5,773.46
Eaton	.....	324.41	394.79
Effingham	.....	327.70	1,136.97
Freedom	.....	298.34	172.99
Hart's Location	.....	150.00	150.00
Jackson	500.00	.....	480.89
Madison	777.12	.....	175.61
Moultonborough	3,392.76	.....	1,837.61
Ossipee	.....	2,003.96	922.24
Sandwich	24,124.91	.....	886.79
Tamworth	15.96	.....	1,320.92
Tuftonborough	5,089.78	.....	324.09
Wakefield	.....	1,535.73	2,382.86
Wolfeborough	111,835.40	.....	2,510.91
	$162,127.86	$5,986.72	$19,582.52

FINANCIAL STATEMENT.—CHESHIRE COUNTY.

TABLE 16.—*Indebtedness, Surplus, and Cash in Treasury for Year ending Feb. 15, 1894, by towns and cities.*

TOWN.	Indebtedness.	Surplus.	Cash in Treasury.
Alstead	$2,211.17	.....	$2,413.65
Chesterfield	2,695.32	.....	817.27
Dublin	.....	$1,789.91	1,734.63
Fitzwilliam	1,000.00	.....	13.89
Gilsum	928.78	.....	549.78
Harrisville	11,613.95	.....	1,386.05
Hinsdale	3,994.00	.....	125.33
Jaffrey	9,721.32	.....	332.63
Keene	260,671.55	.....	11,021.01
Marlborough	3,392.76	.....	2,734.62
Marlow	.....	380.65	36.36
Nelson	467.13	.....	435.76
Richmond	353.08	.....	159.09
Rindge	.....	1,080.71	1,001.16
Roxbury	.....	200.00	84.35
Stoddard	1,027.11	.....	183.61
Sullivan	808.53	.....	271.88
Surry	.....	1,207.68	1,207.68
Swanzey	.....	335.17	1,000.50
Troy	406.22	.....	837.43
Walpole	8,188.12	.....	.....
Westmoreland	2,939.73	.....	18.30
Winchester	20,100.00	.....	904.43
	$330,518.77	$4,994.12	$27,269.51

FINANCIAL STATEMENT.—COÖS COUNTY.

TABLE 17.—*Indebtedness, Surplus, and Cash in Treasury for Year ending Feb. 15, 1894, by towns and cities.*

TOWN.	Indebtedness.	Surplus.	Cash in Treasury.
Berlin	$110,387.87	.....	$18,378.37
Carroll	1,532.40	.....	900.40
Clarksville	.....	$125.71	99.92
Colebrook	.....	2,180.65	2,180.65
Columbia	.....	64.78	200.19
Dalton	16,939.13	.....	373.85
Dummer	3,347.96	.....	71.57
Errol	.....	977.98	1,155.74
Gorham	666.60	.....	323.87
Jefferson	2,996.10	.....	.....
Lancaster	2,965.01	.....	4,275.39
Milan	6,055.46	.....	180.58
Northumberland	.....	1,903.54	2,345.98
Pittsburg	1,507.97	.....	.....
Randolph	303.74	.....	232.59
Shelburne	686.57	.....	491.86
Stark	1,171.35	.....	54.93
Stewartstown	7,057.51	.....	517.50
Stratford	3,900.00	.....	1,709.01
Wentworth's Location	.....	.....	.....
Whitefield	4,308.27	.....	2,749.52
	$163,825.94	$5,252.66	$36,241.92

FINANCIAL STATEMENT.—GRAFTON COUNTY.

TABLE 18.—*Indebtedness, Surplus, and Cash in Treasury for Year ending Feb. 15, 1894, by towns and cities.*

TOWN.	Indebtedness.	Surplus.	Cash in Treasury.
Alexandria	.....	$7.16	$34.83
Ashland	$1,572.01	.....	916.92
Bath	1,483.45	.....	7,374.78
Benton	.....	11.86	11.86
Bethlehem	8,420.94	.....	160.35
Bridgewater	1,517.04	.....	577.52
Bristol	779.47	.....	1,701.85
Campton	10,508.96	.....	1,530.02
Canaan	1,710.85	.....	114.04
Dorchester	11,868.20	.....	218.06
Easton	.....	957.27	377.75
Ellsworth	.....	551.80	551.80
Enfield	626.43	.....	37.46
Franconia	2,898.25	.....	540.27
Grafton	.....	2,721.12	1,071.81
Groton	659.25	.....	1,224.13
Hanover	.....	7,822.61	2,278.98
Haverhill	.....	2,076.53	1,198.20
Hebron	.....	446.29	399.08
Holderness	.....	492.60	529.48
Landaff	.....	589.24	64.68
Lebanon	25,319.01	.....	7,718.68
Lincoln	.....	101.09	101.09
Lisbon	5,360.36	.....	4,032.73
Littleton	.....	643.27	1,439.66
Livermore	.....	.....	.....
Lyman	415.59	.....	64.35
Lyme	.....	265.06	64.63
Monroe	9,670.09	.....	.....
Orange	.....	865.30	286.58
Orford	2,431.94	.....	1,218.09
Piermont	1,216.01	.....	301.01
Plymouth	.....	629.99	461.54
Rumney	1,111.84	.....	217.48
Thornton	5,869.65	.....	2,253.79
Warren	.....	1,596.18	7.49
Waterville	.....	819.74	819.74
Wentworth	.....	1,637.12	1,167.12
Woodstock	6,709.27	.....	1,501.02
	$100,149.61	$22,234.23	$42,568.87

FINANCIAL STATEMENT.—HILLSBOROUGH COUNTY.

TABLE 19.—*Indebtedness, Surplus, and Cash in Treasury for Year ending Feb. 15, 1894, by towns and cities.*

TOWN.	Indebtedness.	Surplus.	Cash in Treasury.
Amherst	.....	$162.32	$185.58
Antrim	$17,133.04	.....	1,574.24
Bedford	.....	356.98	330.55
Bennington	4,935.08	.....	1,051.79
Brookline	.....	1,838.40	614.57
Deering	658.88	.....	844.62
Francestown	423.20	.....	146.58
Goffstown	7,422.72	.....	1,562.57
Greenfield	2,817.79	.....	130.20
Greenville	884.28	.....	906.94
Hancock	1,877.52	.....	750.45
Hillsborough	.....	68.87	857.97
Hollis	8,180.71	.....	
Hudson	.....	3,199.36	1,527.81
Litchfield	84.45	.....	351.27
Lyndeborough	7,015.28	.....	1,126.46
Manchester	1,214,350.00	.....	116,775.41
Mason	.....	87.63	899.80
Merrimack	626.03	.....	1,021.32
Milford	19,114.08	.....	1,801.02
Mont Vernon	1,981.96	.....	994.45
Nashua	531,490.35	.....	2,639.32
New Boston	6,925.51	.....	530.30
New Ipswich	8,627.94	.....	3,801.48
Pelham	.....	661.12	1,049.60
Peterborough	42,300.00	.....	602.90
Sharon	280.00	.....	143.92
Temple	.....	255.38	127.65
Weare	.....	834.97	3,740.27
Wilton	25,822.66	.....	390.59
Windsor	.....	273.57	38.76
	$1,902,951.48	$7,738.60	$146,517.69

FINANCIAL STATEMENT.—MERRIMACK COUNTY.

TABLE 20.—*Indebtedness, Surplus, and Cash in Treasury for Year ending Feb. 15, 1894, by towns and cities.*

TOWN.	Indebtedness.	Surplus.	Cash in Treasury.
Allenstown	.....	$552.83	$320.07
Andover	.....	5,426.12	1,878.20
Boscawen	$1,560.46	.....	624.54
Bow	.....	1,252.43	1,199.43
Bradford	.....	2,426.36	2,410.73
Canterbury	.....	973.43	1,977.59
Chichester	421.72	.....	1,650.45
Concord	67,962.25	.....	51,116.31
Danbury	.....	1,674.89	1,387.29
Dunbarton	.....	621.61	286.20
Epsom	1,395.69	.....	1,304.87
Franklin	72,866.77	.....	5,138.48
Henniker	4,386.55	.....	1,423.73
Hill	.....	522.00	107.00
Hooksett	.....	3,927.65	3,461.98
Hopkinton	.....	3,024.09	4,024.09
Loudon	4,387.21	.....	771.55
Newbury	805.30	.....	757.95
New London	.....	530.21	381.66
Northfield	.....	811.37	799.82
Pembroke	572.05	.....	1,427.95
Pittsfield	52,839.80	.....	766.97
Salisbury	2,347.93	.....	339.16
Sutton	.....	1,980.49	1,675.73
Warner	25,131.15	.....	681.94
Webster	.....	1,684.26	1,109.11
Wilmot	4,051.58	.....	670.96
	$238,728.46	$25,407.74	$87,693.76

FINANCIAL STATEMENT.—ROCKINGHAM COUNTY.

TABLE 21.—*Indebtedness, Surplus, and Cash in Treasury for Year ending Feb. 15, 1894, by towns and cities.*

TOWN.	Indebtedness.	Surplus.	Cash in Treasury.
Atkinson		$437.76	$213.19
Auburn	$2,431.63		14.00
Brentwood		103.68	389.92
Candia	30.93		226.69
Chester		465.34	271.79
Danville	2,585.48		197.16
Deerfield	2,634.96		2,098.95
Derry	12,046.53		5,899.95
East Kingston		153.72	247.63
Epping	23,418.41		900.84
Exeter	89,568.36		12,443.88
Fremont		894.20	1,130.68
Greenland	9,500.00		1,036.99
Hampstead		1,009.76	449.86
Hampton	6,511.82		64.67
Hampton Falls	533.50		
Kensington		219.20	615.93
Kingston	5,319.05		245.08
Londonderry	1,416.30		454.24
Newcastle	22,409.41		579.92
Newington	500.45		499.55
Newmarket	14,168.84		1,999.37
Newton	11,146.64		
North Hampton	840.96		464.04
Northwood	13,164.83		53.35
Nottingham	3,833.27		137.43
Plaistow	733.87		26.83
Portsmouth	170,234.12		13,200.91
Raymond	22,530.34		140.44
Rye	723.84		659.11
Salem	12,117.90		1,240.67
Sandown		705.09	378.18
Seabrook	6,459.37		110.03
South Hampton	1,457.79		165.05
South Newmarket	129.46		229.59
Stratham		21.29	719.14
Windham		647.02	216.06
	$436,448.06	$4,657.06	$47,721.12

FINANCIAL STATEMENT.—STRAFFORD COUNTY.

TABLE 22.—*Indebtedness, Surplus, and Cash in Treasury for Year ending Feb. 15, 1894, by towns and cities.*

TOWN.	Indebtedness.	Surplus.	Cash in Treasury.
Barrington	$12,695.30	.....	$897.38
Dover	600,633.94	.....	28,593.28
Durham	.....	$1,273.96	1,162.21
Farmington	45,078.07	.....	1,734.15
Lee	.....	1,410.59	737.75
Madbury	.....	1,150.08	1,036.26
Middleton	.....	1,322.81	791.47
Milton	.....	1,111.85	1,111.85
New Durham	2,131.07	.....	398.59
Rochester	72,169.57	.....	1,223.06
Rollinsford	10,734.22	.....	1,741.98
Somersworth	76,700.00	.....	7,018.22
Strafford	2,552.40	.....	1,296.55
	$822,694.57	$6,269.29	$47,742.75

FINANCIAL STATEMENT.—SULLIVAN COUNTY.

TABLE 23.—*Indebtedness, Surplus, and Cash in Treasury for Year ending Feb. 15, 1894, by towns and cities.*

TOWN.	Indebtedness.	Surplus.	Cash in Treasury.
Acworth	$625.57	.....	$764.33
Charlestown	1,310.00	.....	3.88
Claremont	101,778.60	.....	1,569.89
Cornish	.....	$304.09	1.70
Croydon	391.97	.....	25.24
Goshen	.....	676.18	159.51
Grantham	3,288.36	.....	.61
Langdon	621.91	.....	596.13
Lempster	.....	580.38	372.56
Newport	101,259.40	.....	715.61
Plainfield	3,061.17	.....	704.64
Springfield	12,571.52	.....	3.25
Sunapee	10,512.11	.....	3,041.11
Unity	.....	283.46	100.30
Washington	.....	1,244.58	985.84
	$235,420.61	$3,088.69	$9,044.60

FINANCIAL STATEMENT.—RECAPITULATION.

TABLE 24.—*Indebtedness, Surplus, and Cash in Treasury for Year ending Feb. 15, 1894, by counties.*

COUNTY.	Indebtedness.	Surplus.	Cash in Treasury.
Belknap	$88,211.72	$14,818.55	$26,472.78
Carroll	162,127.86	5,986.72	19,582.52
Cheshire	330,518.77	4,994.12	27,269.51
Coös	163,825.94	5,252.66	36,241.92
Grafton	100,149.61	22,234.23	42,568.87
Hillsborough	1,902,951.48	7,738.60	146,517.69
Merrimack	238,728.46	25,407.74	87,693.76
Rockingham	436,448.06	4,657.06	47,721.12
Strafford	822,694.57	6,269.29	47,742.75
Sullivan	235,420.61	3,088.69	9,044.60
	$4,481,077.08	$100,447.66	$490,855.52

ABSTRACT OF TOWN STATISTICS.

ABSTRACT OF TOWN STATISTICS.

The following abstract of town and city statistics was compiled from 1893 state reports, and other publications, and gives in brief the location of each town in its respective county; principal (nearest if not in town) railroad stations; line of railroad on which located; banking town; population for 1880 and 1890; number of ratable polls; assessed valuation of land and buildings, mills and machinery, stock in trade, money on hand, at interest, or on deposit, stock in banks or corporations in state; valuation of assessed live stock, with number of horses, oxen, cows, other cattle, sheep, and hogs assessed, and total assessed valuation; taxes assessed; rate of taxation on $100; net debt or surplus; principal industries; marriages; births and deaths by sexes; death rate per 1,000; number of public and graded schools; number of scholars and average daily attendance; amount raised for support of schools, received from other sources, and the total school revenue; number of libraries with number of volumes; annual library appropriation.

ACWORTH.—Located in southern part of Sullivan county. Railroad station, Charlestown, on B. & M. railroad; banking town, Charlestown or Newport. Population, 1880, 982; 1890, 717. Ratable polls, 170; assessed valuation of land and buildings, $220,545; mills and machinery, $2,400; stock in trade, $3,000; money on hand, at interest, or on deposit, $8,673; stock in banks or corporations in state, $5,000; valuation of assessed live stock (351 horses, 82 oxen, 378 cows, 204 other cattle, 2,038 sheep, 8 hogs), $47,296; total assessed valuation, $304,664. Taxes assessed, $5,120.15; rate of taxation, $1.08 on $100; net debt, $646.33. Agriculture is the principal occupation. The manufacture of lumber and other wood products are minor industries. Births, males, 9; females, 2; total, 11; marriages, 5;

deaths, males, 9; females, 6; total, 15; death rate per 1,000, 20.92. Town has 9 public and 1 graded schools; number of scholars, 155; average daily attendance, 115; amount raised for support of schools, $1,089.34; from other sources, $340.35; total school revenue, $1,422.69. One free, and one subscription library, 2,020 volumes.

ALBANY.—Located in northwestern part of Carroll county; area, improved land, 3,000 acres. Railroad station, Conway, on B. & M. railroad; banking town, Rochester. Population, 1880, 361; 1890, 377. Ratable polls, 80; assessed valuation of land and buildings, $54,602; mills and machinery, $5,500; stock in trade, $2,094; valuation of assessed live stock (98 horses, 39 oxen, 72 cows, 23 other cattle), $7,926; total assessed valuation, $78,122. Taxes assessed, $2,729.85; rate of taxation, $3.49 on $100; surplus, $1,106.18. Agriculture is the principal occupation. The manufacture of lumber is also carried on. Births, males, 5; females, 3; total, 8; marriages, 2; deaths, males, 1; females, 2; total, 3; death rate per 1,000, 7.95. Town has 4 public schools; number of scholars, 63; average daily attendance, 41; amount raised for support of schools, $648.85; from other sources, $138.75; total school revenue, $787.60.

ALEXANDRIA.—Located in southeast part of Grafton county; area, improved land, 14,380 acres. Railroad station, Bristol, on Bristol Branch, Concord Division B. & M. railroad; banking town, Concord. Population, 1880, 828; 1890, 679. Ratable polls, 182; assessed valuation of land and buildings, $149,216; mills and machinery, $3,690; stock in trade, $6,300; money on hand, at interest, or on deposit, $11,450; valuation of assessed live stock (257 horses, 124 oxen, 285 cows, 205 other cattle, 843 sheep, 3 hogs), $33,688; total assessed valuation, $223,200. Taxes assessed, $3,733.18; rate of taxation, $1.67 on $100; surplus, $1,093.99. Agriculture is the principal occupation. The manufacture of lumber is a minor industry. Births, males, 8; females, 5; total, 13; marriages, 2; deaths, males, 7; females, 14; total, 21; death rate per 1,000, 30.92. Town has 9 public schools; number of scholars, 169; average daily attendance, 120; amount raised for support of schools, $788.50; from other sources, $1,540.50; total school revenue, $2,329. One free library, 900 volumes.

ALLENSTOWN.—Located in eastern part of Merrimack county; area, improved land, 3,192 acres. Railroad station, Suncook, on C. & M. railroad; banking town, Manchester. Population, 1880, 1,707; 1890, 1,475. Ratable polls, 295; assessed valuation of land and buildings, $306,370; mills and machinery, $238,000; stock in trade, $38,600; money on hand, at interest, or on deposit, $20,000; stock in banks, or corporations in state, $2,200; valuation of assessed live stock (107 horses, 18 oxen, 111 cows, 27 other cattle, 47 sheep, 4 hogs), $12,192; total assessed valuation, $648,332. Taxes assessed, $6,094.33; rate of taxation, $0.94 on $100; surplus, $552.83. Agriculture is the principal occupation. The manufacture of brick, cotton goods, lumber, and granite, are important industries. Births, males, 29; females, 35; total, 64; marriages, 8; deaths, males, 11; females, 16; total, 22; death rate per 1,000, 18.30. Town has 3 public and 2 graded schools; number of scholars, 72; average daily attendance, 47; amount raised for support of schools, $1,050.50; from other sources, $189.78; total school revenue, $1,240.28.

ALSTEAD.—Located in northern part of Cheshire county; area, improved land, 17,714 acres. Railroad station, Cold River, on Cheshire Branch Fitchburg Railroad; banking town, Charlestown, or Bellows Falls, Vt. Population, 1880, 1,037; 1890, 867. Ratable polls, 211; assessed valuation of land and buildings, $351,795; mills and machinery, $14,300; stock in trade, $21,800; money on hand, at interest, or on deposit, $19,955; stock in banks or corporations in state, $25,000; valuation of assessed live stock (362 horses, 58 oxen, 512 cows, 147 other cattle, 1,531 sheep, 15 hogs), $47,280; total assessed valuation, $503,004. Taxes assessed, $6,288.51; rate of taxation, $1.25 on $100; net debt, $3,019.69. Agriculture is the principal occupation. The manufacture of agricultural implements, lumber and other products, are minor industries. Births, males, 4; females, 4; total, 8; marriages, 9; deaths, males, 11; females, 7; total, 18; death rate per 1,000, 20.68. Town has 9 public and 2 graded schools; number of scholars, 156; average daily attendance, 119; amount raised for support of schools, $1,300; from other sources, $443.75; total school revenue, $1,743.75.

ALTON.—Located in eastern part of Belknap county; area, improved land, 18,000 acres. Railroad stations, Alton and Alton Bay on B. & M. and C. & M. railroad; banking town, Farmington or Wolfeborough. Population, 1880, 1,476; 1890, 1,372. Ratable polls, 407; assessed valuation of land and buildings, $456,887; mills and machinery, $3,100; stock in trade, $15,350; money on hand, at interest, or on deposit, $12,600; stock in banks or corporations in state, $3,600; valuation of assessed live stock (432 horses, 112 oxen, 643 cows, 206 other cattle, 323 sheep, 10 hogs), $49,206; total assessed valuation, $582,736. Taxes assessed, $12,354; rate of taxation, $2.12 on $100; net debt, $2,017.29. Agriculture is the principal occupation. The manufacture of lumber and wooden goods, and boots and shoes, are important industries. Births, males, 12; females, 13; total, 25; marriages, 17; deaths, males, 20; females, 13; total, 33; death rate per 1,000, 24.05. Town has 12 public and 2 graded schools; number of scholars, 205; average daily attendance, 180; amount raised for support of schools, $1,025.50; from other sources, $1,132.59; total school revenue, $2,158.09. One free library; annual appropriation, $35.

AMHERST.—Located in southeastern part of Hillsborough county; area, 22,432 acres. Railroad station, Amherst, on B. & M. railroad; banking town, Milford. Population, 1880, 1,225; 1890, 1,053. Ratable polls, 263; assessed valuation of land and buildings, $513,570; mills and machinery, $6,800; stock in trade, $14,180; money on hand, at interest, or on deposit, $15,100; stock in banks or corporations in state, $8,300; valuation of assessed live stock (331 horses, 24 oxen, 976 cows, 146 other cattle, 5 sheep, 8 hogs), $48,376; total assessed valuation, $637,314. Taxes assessed, $8,460.85; rate of taxation, $1.33 on $100; net debt, $591.04. Agriculture is the principal occupation. The manufacture of brick and wooden goods are minor industries. Births, males, 10; females, 8; total, 18; marriages, 4; deaths, males, 15; females, 4; total, 19; death rate per 1,000, 18.04. Town has 10 public and 1 high schools; number of scholars, 175; average daily attendance, 121; amount raised for support of schools, $2,300; from other sources, $744.22; total school revenue, $3,044.22. One free library, 2,122 volumes; annual appropriation, $200.

ANDOVER.—Located in northwest part of Merrimack county; area, 29,800 acres. Railroad station, Andover, on Concord Division B. & M. railroad; banking town, Concord or Franklin. Population, 1880, 1,204; 1890, 1,090. Ratable polls, 307: assessed valuation of land and buildings, $313,032; mills and machinery, $8,800; stock in trade, $30,098: money on hand, at interest, or on deposit, $17,078; stock in banks or corporations in state, $19,300; valuation of assessed live stock (343 horses, 112 oxen, 489 cows, 149 other cattle, 816 sheep, 6 hogs), $41,406; total assessed valuation, $461,490. Taxes assessed, $5,537.68; rate of taxation, $1.20 on $100; surplus, $5,426.12. Agriculture is the principal occupation. The manufacture of lumber and wooden goods, harness, hosiery, etc., are minor industries. Births, males, 10; females, 12; total, 22; marriages, 9; deaths, males, 9; females, 12; total, 21; average death rate per 1,000, 19.26. Town has 10 public schools; number of scholars, 199; average daily attendance, 150; amount raised for support of schools, $1,791.60; from other sources, $480.35; total school revenue, $2,271.95. One free library, 1,400 volumes.

ANTRIM.—Located in northwest part of Hillsborough county; area, 21,173 acres. Railroad station, Antrim, on B. & M. railroad; banking town, Hillsborough or Peterborough. Population, 1880, 1,172; 1890, 1,248. Ratable polls, 396; assessed valuation of land and buildings, $328,810; mills and machinery, $29,350; stock in trade, $54,800; money on hand, at interest, or on deposit, $38,322; stock in banks or corporations in state, $9,900; valuation of assessed live stock (374 horses, 80 oxen, 642 cows, 201 other cattle, 394 sheep, 7 hogs), $43,775; total assessed valuation, $545,782. Taxes assessed, $10,915.64; rate of taxation, $2.00 on 100; net debt, $3,679.69. Agriculture is the principal occupation. The manufacture of cutlery, lumber and wooden goods, are important industries. Births, males, 14; females, 14; total, 28; marriages, 21; deaths, males, 15; females, 14; total, 29; death rate per 1,000, 23.23. Town has 11 public, 6 graded, and 1 high schools; number of scholars, 246; average daily attendance, 157; amount raised for support of schools, $2,000; from other sources, $2,775.84; total school revenue, $4,775.84. One subscription library, 450 volumes.

ASHLAND.—Located in southeastern part of Grafton county; area, improved land, 3,853 acres. Railroad station, Ashland, on C. & M. railroad; banking town, Plymouth. Population, 1880, 960; 1890, 1,193. Ratable polls, 313; assessed valuation of land and buildings, $303,301; mills and machinery, $60,100; stock in trade, $47,796; money on hand, at interest, or on deposit, $4,500; stock in banks or corporations in state, $12,000; valuation of assessed live stock (242 horses, 29 oxen, 217 cows, 32 other cattle, 95 sheep), $26,896; total assessed valuation, $488,067. Taxes assessed, $7,711.45; rate of taxation, $1.58 on $100; net debt, $2,308. The manufacture of hosiery, flannel, lumber, paper, etc., are the principal industries. Births, males, 5; females, 10; total, 15; marriages, 9; deaths, males, 14; females, 13; total, 27, death rate per 1,000, 22.63. Town has 6 public and 1 graded schools; number of scholars, 262; average daily attendance, 159; amount raised for support of schools, $1,566.15; from other sources, $1,362.03; total school revenue, $2,928.18. One free library, 1,800 volumes; annual appropriation, $100.

ATKINSON.—Located in southern part of Rockingham county; area, 6,939 acres. Railroad station, Atkinson Depot on B. & M. railroad; banking town, Haverhill, Mass. Population, 1880, 502; 1890, 483. Ratable polls, 126; assessed valuation of land and buildings, $240,150; mills and machinery, $600; stock in trade, $3,060; money on hand, at interest, or on deposit, $16,100; valuation of assessed live stock (156 horses, 12 oxen, 481 cows, 30 other cattle, 10 sheep, 7 hogs), $20,472; total assessed valuation, $297,442. Taxes assessed, $3,569.31; rate of taxation, $1.20 on $100; surplus, $437.76. Agriculture is the principal occupation. The manufacture of shoes is a minor industry. Births, males, 2; females, 4; total, 6; marriages, 2; deaths, males, 12; females, 10; total, 22; death rate per 1,000, 45.54. Town has 4 public schools; number of scholars, 54; average daily attendance, 41; amount raised for support of schools, $451.50; from other sources, $151.40; total school revenue, $602.90.

AUBURN.—Located in western part of Rockingham county. Railroad station, Auburn, on C. & M. railroad; banking town, Manchester. Population, 1880, 719; 1890,

631. Ratable polls, 158; assessed valuation of land and buildings, $231,276; mills and machinery, $3,100; stock in trade, $6,655; money on hand, at interest, or on deposit, $13,855; stock in banks or corporations in state, $500; valuation of assessed live stock (177 horses, 20 oxen, 278 cows, 42 other cattle, 51 sheep, 9 hogs), $19,295; total assessed valuation, $290,581. Taxes assessed, $3,722.61; rate of taxation, $1.28 on $100; net debt, $2,431.63. Agriculture is the principal occupation. The manufacture of lumber is a minor industry. Births, males, 3; females, 1; total, 4; marriages, 2; deaths, males, 5; females, 5; total 10; death rate per 1,000, 16.14. Town has 7 public schools; number of scholars, 118; average daily attendance, 89; amount raised for support of schools, $497; from other sources, $584.73; total school revenue, $1,081.63. One free library, 1,000 volumes.

BARNSTEAD.—Located in southern part of Belknap county; area, 26,000 acres. Railroad station, Barnstead, on Suncook Valley Branch C. & M. railroad; banking town, Pittsfield. Population, 1880, 1,296; 1890, 1,264. Ratable polls, 318; assessed valuation of land and buildings, $408,543; mills and machinery, $5,900; stock in trade, $6,675; money on hand, at interest, or on deposit, $6,205; stock in banks or corporations in state, $318; valuation of assessed live stock (445 horses, 89 oxen, 663 cows, 361 other cattle, 349 sheep, 7 hogs), $55,404; total assessed valuation, $516,028. Taxes assessed, $7,518; rate of taxation, $1.45 on $100; net debt, $1,616.37. Agriculture is the principal occupation. The manufacture of woolen goods and hosiery, boots, shoes, and lumber, are important industries. Births, males, 10; females, 7; total, 17; marriages, 11; deaths, males, 4; females, 22; total, 26; death rate per 1,000, 20.56. Town has 9 public schools; number of scholars, 190; average daily attendance, 135; amount raised for support of schools, $2,231; from other sources, $602.83; total school revenue, $2,833.83. One free library, 442 volumes; annual appropriation, $125.

BARRINGTON.—Located in southwestern part of Strafford county; area, 25,260 acres. Railroad station, Barrington, on B. & M. railroad; banking town, Dover or Rochester. Population, 1880, 1,497; 1890, 1,408. Ratable polls, 287;

assessed valuation of land and buildings, $338,106; mills and machinery, $4,000; stock in trade, $21,500; money on hand, at interest, or on deposit, $1,993; stock in banks or corporations in state, $5,200; valuation of assessed live stock (393 horses, 114 oxen, 623 cows, 238 other cattle, 225 sheep, 6 hogs), $42,962; total assessed valuation, $446,372. Taxes assessed, $13,391.16; rate of taxation, $3.00 on $100; net debt, $12,695.30. Agriculture is the principal occupation. The manufacture of lumber, boxes, and brick are minor industries. Births, males, 8; females, 8; total, 16; marriages, 14; deaths, males, 16; females, 21; total, 37; death rate per 1,000, 26.27. Town has 11 public schools; number of scholars, 255; average daily attendance, 184; amount raised for support of schools, $1,495; from other sources, $1,027.60; total school revenue, $2,522.60.

BARTLETT.—Located in northwest part of Carroll county; area, 13,000 acres. Railroad stations, Bartlett and Glen Station on Maine Central railroad; banking town, Portland, Me. Population, 1880, 1,044; 1890, 1,247. Ratable polls, 380; assessed valuation of land and buildings, $244,853; mills and machinery, $14,000; stock in trade, $24,900; money on hand, at interest, or on deposit, $1,310; valuation of assessed live stock (321 horses, 8 oxen, 277 cows, 33 other cattle, 130 sheep, 5 hogs), $25,465; total assessed valuation, $351,614. Taxes assessed, $7,795.11; rate of taxation, $2.22 on $100; net debt, $1,495.19. Agriculture is the principal occupation. The manufacture of lumber is also an important industry. Births, males, 17; females, 24; total, 41; marriages, 9; deaths, males, 15; females, 7; total, 22; death rate per 1,000, 17.64. Town has 6 public and 1 graded schools; number of scholars, 240; average daily attendance, 226; amount raised for support of schools, $437.60; from other sources, $811.70; total school revenue, $1,249.30.

BATH.—Located in northwest part of Grafton county; area, improved land, 18,639 acres. Railroad station, Bath, on C. & M. railroad; banking town, Lisbon, or Wells River, Vt. Population, 1880, 1,032; 1890, 935. Ratable polls, 268; assessed valuation of land and buildings, $367,180; mills and machinery, $10,000; stock in trade, $21,000; money on hand, at interest, or on deposit, $11,430; valuation of

assessed live stock (530 horses, 87 oxen, 967 cows, 334 other cattle, 2,434 sheep, 84 hogs), $65,677; total assessed valuation, $510,327. Taxes assessed, $10,002.40; rate of taxation, $1.96 on $100; net debt, $4,004.46. Agriculture is the principal occupation. The manufacture of lumber, and other wood products are important industries. Births, males, 5; females, 10; total, 15; marriages, 7; deaths, males, 5; females, 3; total, 8; death rate per 1,000, 8.55. Town has 9 public schools; number of scholars, 158; average daily attendance, 118; amount raised for support of schools, $1,273.50; from other sources, $368.96; total school revenue, $1,642.46. One free library, 430 volumes.

BEDFORD.—Located in eastern part of Hillsborough county; area, 20,000 acres. Railroad station, Manchester, on C. & M. railroad; banking town, Manchester. Population, 1880, 1,204; 1890, 1,102. Ratable polls, 271; assessed valuation of land and buildings, $468,059; mills and machinery, $2,150; stock in trade, $7,570; money on hand, at interest, or on deposit, $57,456; stock in banks or corporations in state, $1,150; valuation of assessed live stock (460 horses, 24 oxen, 1,051 cows, 120 other cattle, 40 sheep, 68 hogs), $59,869; total assessed valuation, $618,289. Taxes assessed, $8,093; rate of taxation, $1.31 on $100; surplus, $37.98. Agriculture is the principal occupation. The manufacture of shoes and lumber are minor industries. Births, males, 7; females, 11; total, 18; marriages, 5; deaths, males, 17; females, 8; total, 25; death rate per 1,000, 22.68. Town has 10 public schools; number of scholars, 193; average daily attendance, 137; amount raised for support of schools, $1,437; from other sources, $797.01; total school revenue, $2,234.01.

BELMONT.—Located in western part of Belknap county; area, improved land, 10,625 acres. Railroad station, Belmont, on Tilton and Belmont Branch C. & M. railroad; banking town, Laconia or Tilton. Population, 1880, 1,226; 1890, 1,142. Ratable polls, 314; assessed valuation of land and buildings, $363,148; mills and machinery, $25,800; stock in trade, $19,496; money on hand, at interest, or on deposit, $15,622; stock in banks or corporations in state, $11,100; valuation of assessed live stock (388 horses, 90

oxen, 515 cows, 155 other cattle, 252 sheep, 10 hogs), $39,972; total assessed valuation, $507,754. Taxes assessed, $7,868.39; rate of taxation, $1.55 on $100; net debt, $9,522.27. Agriculture is the principal occupation. The manufacture of hosiery and lumber, etc., are important industries. Births, males, 13; females, 14; total, 27; marriages, 10; deaths, males, 18; females, 16; total, 34; death rate per 1,000, 29.77. Town has 8 public and 3 graded schools; number of scholars, 190; average daily attendance, 135; amount raised for support of schools, $1,130; from other sources, $464.40; total school revenue, $1,604.40. One free library, 400 volumes.

BENNINGTON.—Located in northwest part of Hillsborough county; area, improved land, 3,299 acres. Railroad station, Bennington, on Concord Division B. & M. railroad; banking town, Francestown, Hillsboro Bridge, Nashua, or Peterborough. Population, 1880, 443; 1890, 542. Ratable polls, 189; assessed valuation of land and buildings, $173,220; stock in trade, $18,300; money on hand, at interest, or on deposit, $3,300; stock in banks or corporations in state, $2,600; valuation of assessed live stock (116 horses, 16 oxen, 182 cows, 24 other cattle, 43 sheep), $12,937; total assessed valuation, $229,357. Taxes assessed, $6,079; rate of taxation, $2.65 on $100; net debt, $6,196.34. Agriculture is a leading occupation. The manufacture of cutlery, paper, and lumber are the most important industries. Births, males, 7; females, 8; total, 15; marriages, 3; deaths, males, 3; females, 9; total, 12; death rate per 1,000, 22.14. Town has 3 public and 2 graded schools; number of scholars, 102; average daily attendance, 72; amount raised for support of schools, $612; from other sources, $284.54; total school revenue, $896.54. One free library, 700 volumes; annual appropriation, $25.

BENTON.—Located in western part of Grafton county. Railroad stations, North Haverhill and Woodsville, on C. & M. railroad; banking town, Woodsville, or Wells River, Vt. Population, 1880, 378; 1890, 244. Ratable polls, 60; assessed valuation of land and buildings, $78,177; mills and machinery, $300; stock in trade, $3,000; valuation of assessed live stock (109 horses, 30 oxen, 206 cows, 52 other cattle, 81

sheep), $12,532; total assessed valuation, $100,009. Taxes assessed, $1,912.23; rate of taxation, $1.91 on $100; surplus, $12.89. Agriculture is the principal occupation. The timber industry is an important one. Births, males, 3; females, 1; total, 4; marriages, 3; deaths, males, 3; females, 4; total, 7; death rate per 1,000, 28.68. Town has 3 public schools; number of scholars, 58; average daily attendance, 39; amount raised for support of schools, $425; from other sources, $91.15; total school revenue, $516.15.

BERLIN.—Located in southern part of Coös county; area, 31,000 acres. Railroad station, Berlin Falls, on Grand Trunk and C. & M. railroads; a banking town. Population, 1880, 1,144; 1890, 3,729. Ratable polls, 1,407; assessed valuation of land and buildings, $667,710; mills and machinery, $360,800; stock in trade, $158,450; money on hand, at interest, or on deposit, $7,904; stock in banks or corporations in state, $18,500; valuation of assessed live stock (374 horses, 8 oxen, 214 cows, 18 other cattle, 126 sheep, 9 hogs), $33,302; total assessed valuation, $1,390,940. Taxes assessed, $32,826.18; rate of taxation, $2.36 on $100; net debt, $67,766.59. The manufacture of paper, lumber, and various wood products, are the principal industries. Births, males, 117; females, 89; total, 206; marriages, 42; deaths, males, 57; females, 48; total, 105; death rate per 1,000, 28.15. Town has 8 public, 8 graded, and 1 high school; number of scholars, 389; average daily attendance, 246; amount raised for support of schools, $4,350; from other sources, $1,211.93; total school revenue, $5,371.93. One free library, 465 volumes; annual appropriation, $120.

BETHLEHEM.—Located in northern part of Grafton county; area, 31,154 acres. Railroad station, Bethlehem, on C. & M. railroad; banking town, Littleton. Population, 1880, 1,400; 1890, 1,267. Ratable polls, 343; assessed valuation of land and buildings, $561,627; mills and machinery, $18,700; stock in trade, $39,640; money on hand, at interest, or on deposit, $7,600; stock in banks or corporations in state, $1,000; valuation of assessed live stock (471 horses, 51 oxen, 639 cows, 178 other cattle, 447 sheep, 87 hogs), $50,739; total assessed valuation, $721,347. Taxes assessed,

$13,315.59; rate of taxation, $1.84 on $100; net debt, $9,287.87. Agriculture, and the entertainment of summer visitors are the principal occupations. The manufacture of lumber is also an important industry. Births, males, 14; females, 11; total, 25; marriages, 10; deaths, males, 7; females, 6; total, 13; death rate per 1,000, 10.26. Town has 12 public, 3 graded, and 1 high school; number of scholars, 305; average daily attendance, 270; amount raised for support of schools, $1,106; from other sources, $1,902.21; total school revenue, $3,008.21. One subscription library, 1,250 volumes.

BOSCAWEN.—Located in central part of Merrimack county; area, improved land, 9,274 acres. Railroad station, Boscawen, on Concord Division B. & M. railroad; banking town, Concord. Population, 1880, 1,381; 1890, 1,487. Ratable polls, 345; assessed valuation of land and buildings, $444,612; mills and machinery, $55,500; stock in trade, $64,575; money on hand, at interest, or on deposit, $19,996; stock in banks or corporations in state, $4,600; valuation of assessed live stock (297 horses, 49 oxen, 368 cows, 34 other cattle, 309 sheep, 18 hogs), $29,098; total assessed valuation, $661,566. Taxes assessed, $14,123.81; rate of taxation, $2.13 on $100; net debt, $1,560.46. Although Boscawen is an agricultural town, many of its people are engaged in manufacturing pursuits in Penacook. Births, males, 17; females, 13; total, 30; marriages, 8; deaths, males, 22; females, 17; total, 39; death rate per 1,000, 26.22. Town has 9 public, 3 graded, and 1 high school; number of scholars, 214; average daily attendance, 167; amount raised for support of schools, $1,249.48; from other sources, $1,520; total school revenue, $2,769.48.

BOW.—Located in southeastern part of Merrimack county; area, 16,000 acres. Railroad station, Concord, on C. & M. railroad; banking town, Concord. Population, 1880, 734; 1890, 725. Ratable polls, 193; assessed valuation of land and buildings, $275,214; mills and machinery, $43,100; stock in trade, $21,750; money on hand, at interest, or on deposit, $22,348; stock in banks or corporations in state, $11,200; valuation of assessed live stock (228 horses, 57 oxen, 480 cows, 110 other cattle, 68 sheep, 9 hogs), $27,287; total assessed valuation, $420,483. Taxes

assessed, $4,300.24; rate of taxation, $1.02 on $100; surplus, $1,252.43. Agriculture is the principal occupation. The manufacture of lumber and brick are minor industries. Births, males, 8; females, 3; total, 11; marriages, 3; deaths, males, 8; females, 11; total, 19; death rate per 1,000, 26.20. Town has 9 public schools; number of scholars, 130; average daily attendance, 103; amount raised for support of schools, $1,268; from other sources, $439.42; total school revenue, $1,707.42.

BRADFORD.—Located in southwestern part of Merrimack county; area, 19,000 acres. Railroad station, Bradford, on Concord Division B. & M. railroad; banking town, Concord. Population, 1880, 950; 1890, 810. Ratable polls, 230; assessed valuation of land and buildings, $282,586; mills and machinery, $6,225; stock in trade, $18,175; money on hand, at interest, or on deposit, $32,016; stock in banks or corporations in state, $5,100; valuation of assessed live stock (264 horses, 86 oxen, 699 cows, 296 other cattle, 1,015 sheep, 15 hogs), $45,554; total assessed valuation, $423,991. Taxes assessed, $5,864.50; rate of taxation, $1.38 on $100; surplus, $2,426.36. Agriculture is the principal occupation. The manufacture of lumber and granite are minor industries. Births, males, 3; females, 5; total, 8; marriages, 8; deaths, males, 5; females, 11; total, 16; death rate per 1,000, 19.75. Town has 8 public, 2 graded, and 1 high school; number of scholars, 133; average daily attendance, 97; amount raised for support of schools, $843.30; from other sources, $271.50; total school revenue, $1,114.80. One free library, 353 volumes.

BRENTWOOD.—Located in central part of Rockingham county; area, 10,465 acres. Railroad stations, Exeter or Fremont, on B. & M. railroad; Epping, on C. & M. railroad; banking town, Exeter. Population, 1880, 999; 1890, 967. Ratable polls, 183; assessed valuation of land and buildings, $210,465; mills and machinery, $13,100; stock in trade, $15,853; money on hand, at interest, or on deposit, $15,800; stock in banks or corporations in state, $700; valuation of assessed live stock (260 horses, 36 oxen, 374 cows, 86 other cattle, 87 sheep, 31 hogs), $34,409; total assessed valuation, $309,168. Taxes assessed, $3,246.26; rate of taxation, $1.05 on $100; surplus, $103.68. Agriculture is the prin-

cipal occupation. The manufacture of lumber, shingles, boxes, and brick, are important industries. Births, males, 4; females, 4; total,8; marriages, 6; deaths, males, 16; females, 14; total, 30; death rate per 1,000, 31.02. Town has 4 public schools; number of scholars, 124; average daily attendance, 87; amount raised for support of schools, $504; from other sources, $390.84; total school revenue, $894.84. One subscription library, 400 volumes.

BRIDGEWATER.—Located in southeastern part of Grafton county; area, improved land, 7,878 acres. Railroad station, Bridgewater, on C. & M. railroad; banking town, Plymouth. Population, 1880, 384; 1890, 332. Ratable polls, 84; assessed valuation of land and buildings, $87,321; stock in trade, $802; money on hand, at interest, or on deposit, $345; valuation of assessed live stock (104 horses, 58 oxen, 143 cows, 112 other cattle, 566 sheep, 2 hogs), $15,135; total assessed valuation, $112,473. Taxes assessed, $2,249.48; rate of taxation, $2.00 on $100; net debt, $2,260.52. Agriculture is the principal occupation. The manufacture of lumber is a minor industry. Births, males, 4; females, 8; total, 12; marriages, 2; deaths, males, 9; females, 3; total, 12; death rate per 1,000, 36.14. Town has 7 public schools; number of scholars, 58; average daily attendance, 54; amount raised for support of schools, $371.90; from other sources, $203.84; total school revenue, $575.74.

BRISTOL.—Located in southeastern part of Grafton county; area, 9,000 acres. Railroad station, Bristol, on Bristol Branch B. & M. railroad; banking town, Concord. Population, 1880, 1,352; 1890, 1,524. Ratable polls, 377; assessed valuation of land and buildings, $441,310; mills and machinery, $62,200; stock in trade, $61,950; money on hand, at interest, or on deposit, $21,550; stock in banks or corporations in state, $13,800; valuation of assessed live stock (335 horses, 85 oxen, 340 cows, 109 other cattle, 193 sheep, 14 hogs), $25,680; total assessed valuation, $676,070. Taxes assessed, $13,654.14; rate of taxation, $2.02 on $100; net debt, $1,689.29. Agriculture is the principal occupation. The manufacture of paper, woolen goods, carriages, and other mercantile pursuits are the prin-

cipal industries. Births, males, 17 ; females, 12 ; total, 29 ; marriages, 11 ; deaths, males, 18 ; females, 10 ; total, 28 ; death rate per 1,000, 18.37. Town has 10 public, 5 graded, and 1 high school ; number of scholars, 269 ; average daily attendance, 202 ; amount raised for support of schools, $2,928.72 ; from other sources, $520.43 : total school revenue, $3,449.15. One free library, 2,302 volumes ; annual appropriation, $358.20.

BROOKFIELD.—Located in southern part of Carroll county. Railroad station, Wolfeborough Junction, on B. & M. railroad ; banking town, Wolfeborough. Population, 1880, 428 ; 1890, 349. Ratable polls, 89 ; assessed valuation of land and buildings, $95,223 ; mills and machinery, $2,300 ; stock in trade, $3,375 ; money on hand, at interest, or on deposit, $1,400 ; valuation of assessed live stock (120 horses, 70 oxen, 212 cows, 66 other cattle, 179 sheep, 7 hogs), $17,385 ; total assessed valuation, $128,580. Taxes assessed, $2,142.99 ; rate of taxation, $1.66 on $100 ; net debt, $327.29. Agriculture is the principal occupation. The manufacture of lumber and excelsior are minor industries. Births, males, 5 ; females, 1 ; total, 6 ; marriages, 2 ; deaths, males, 3 ; females, 1 ; total, 4 ; death rate per 1,000, 11.46. Town has 3 public schools ; number of scholars, 76 ; average daily attendance, 58 ; amount raised for support of schools, $268.50 ; from other sources, $121.20 ; total school revenue, $389.70.

BROOKLINE.—Located in southern part of Hillsborough county; area, 12,664 acres. Railroad station, Brookline, on Fitchburg railroad ; banking town, Milford or Townsend, Mass. Population, 1880, 698; 1890, 548. Ratable polls, 208 ; assessed valuation of land and buildings, $220,034 ; mills and machinery, $10,250 ; stock in trade, $12,620 ; money on hand, at interest, or on deposit, $21,570 ; stock in banks or corporations in state, $840 ; valuation of assessed live stock (175 horses, 8 oxen, 161 cows, 10 other cattle, 2 hogs), $13,580 ; total assessed valuation, $300,824. Taxes assessed, $4,963.35 ; rate of taxation, $1.65 on $100 ; surplus, $137.65. Agriculture is the principal occupation. The manufacture of lumber and cooper's stock are important industries. Births, males, 7 ; females, 4 ; total, 11 ; marriages, 3 ; deaths, males, 5 ; females, 5 ; total, 10 ; death rate per 1,000, 18.24.

Town has 4 public and 4 graded schools; number of scholars, 100; average daily attendance, 61; amount raised for support of schools, $1,029; from other sources, $190.59; total school revenue, $1,219.59. One free library, 1,300 volumes; annual appropriation, $100.

CAMPTON.—Located in eastern part of Grafton county; area, 27,892 acres. Railroad station, Campton village, on Pem. Valley Branch C. & M. railroad; banking town, Plymouth. Population, 1880, 1,163; 1890, 982. Ratable polls, 267; assessed valuation of land and buildings, $233,748; mills and machinery, $12,210; stock in trade, $16,810; money on hand, at interest, or on deposit, $7,400; stock in banks or corporations in state, $3,300; valuation of assessed live stock (381 horses, 171 oxen, 452 cows, 255 other cattle, 980 sheep, 3 hogs), $44,698; total assessed valuation, $346,030. Taxes assessed, $8,650.75; rate of taxation, $2.50 on $100; net debt, $13,139. Agriculture is the principal industry. The manufacture of lumber and woolens are minor industries. Births, males, 3; females, 9; total, 12; marriages, 11; deaths, males, 9; females, 9; total, 18; death rate per 1,000, 18.32. Town has 12 public schools; number of scholars, 195; average daily attendance, 138; amount raised for support of schools, $1,600; from other sources, $350; total school revenue, $1,950.

CANAAN.—Located in southern part of Grafton county; area, improved land, 20,403 acres. Railroad stations, Canaan and West Canaan, on Northern Division B. & M. railroad; banking town, Concord. Population, 1880, 1,762; 1890, 1,417. Ratable polls, 371; assessed valuation of land and buildings, $372,891; mills and machinery, $7,475; stock in trade, $27,000; money on hand, at interest, or on deposit, $21,536; stock in banks or corporations in state, $600; valuation of assessed live stock (402 horses, 106 oxen, 739 cows, 168 other cattle, 1,486 sheep, 13 hogs), $47,430; total assessed valuation, $515,927. Taxes assessed, $8,099.80; rate of taxation, $1.57 on $100; net debt, $3,049.81. Agriculture is the principal occupation. The manufacture of lumber, wooden goods, woolen goods, and other mercantile pursuits, are minor industries. Births, males, 14; females, 8; total, 22; marriages, 9; deaths, males, 18; females, 18; total, 36; death rate per 1,000,

25.40. Town has 13 public and 3 graded schools ; number of scholars, 327 ; average daily attendance, 217 ; amount raised for support of schools, $1,614.52 ; from other sources, $587.02 ; total school revenue, $2,201.54. One subscription library, 600 volumes.

Candia.—Located in western part of Rockingham county ; area, 17,743 acres. Railroad station, Candia, on C. & M. railroad ; banking town, Manchester. Population, 1880, 1,340; 1890, 1,108. Ratable polls, 279 ; assessed valuation of land and buildings, $278,662 ; mills and machinery, $1,000 ; stock in trade, $10,050 ; money on hand, at interest, or on deposit, $1,800 ; stock in banks or corporations in state, $700 ; valuation of assessed live stock (293 horses, 42 oxen, 409 cows, 62 other cattle, 30 sheep, 6 hogs), $26,113 ; total assessed valuation, $346,975. Taxes assessed, $5,204.63 ; rate of taxation, $1.50 on $100 ; net debt, $30.93. Agriculture is the principal occupation. The manufacture of shoes, baskets, etc., are minor industries. Births, males, 2 ; females, 3 ; total, 5 ; marriages, 14 ; deaths, males, 13 ; females, 18 ; total, 31 ; death rate per 1,000, 28.97. Town has 11 public schools ; number of scholars, 201 ; average daily attendance, 156 ; amount raised for support of schools, $1,275.60 ; from other sources, $741.21 ; total school revenue, $2,016.81. One free library, 740 volumes ; annual appropriation, $50.

Canterbury.—Located in northeast part of Merrimack county ; area, 26,345 acres. Railroad station, Canterbury, on C. & M. railroad ; banking town, Concord. Population, 1880, 1,033 ; 1890, 964. Ratable polls, 228 ; assessed valuation of land and buildings, $389,224 ; mills and machinery, $2,600 ; stock in trade, $9,000 ; money on hand, at interest, or on deposit, $12,232 ; stock in banks or corporations in state, $200 ; valuation of assessed live stock (309 horses, 146 oxen, 617 cows, 347 other cattle, 823 sheep, 37 hogs), $52,076 ; total assessed valuation, $488,460. Taxes assessed, $5,128.83 ; rate of taxation, $1.05 on $100 ; surplus, $973.43. Agriculture is the principal occupation. But few are engaged in manufacturing industries. Births, males, 3 ; females, 4 ; total, 7 ; marriages, 6 ; deaths, males, 11 ; females, 14 ; total, 25 ; death rate per 1,000, 25.93.

Town has 8 public schools; number of scholars, 169; average daily attendance, 111; amount raised for support of schools, $920.50; from other sources, $1,011.71; total school revenue, $1,932.21. One free library, 2,000 volumes.

CARROLL.—Located in southern part of Coös county; area, 25,000 acres. Railroad stations, Twin Mountain, Fabyan's, and Crawford's, on C. & M. and Maine Central railroads; banking town, Lancaster or Whitefield. Population, 1880, 660; 1890, 841. Ratable polls, 168; assessed valuation of land and buildings, $196,166; mills and machinery, $20,100; stock in trade, $21,800; valuation of assessed live stock (261 horses, 8 oxen, 250 cows, 31 other cattle, 93 sheep, 51 hogs), $18,666; total assessed valuation, $276,962. Taxes assessed, $5,599.33; rate of taxation, $2.02 on $100. Agriculture, and the entertainment of summer visitors, are the principal occupations. The manufacture of lumber is also carried on extensively. Births, males, 3; females, 5; total, 8; marriages, 11; deaths, males, 6; females, 4; total, 10; death rate per 1,000, 12.30. Town has 7 public schools; number of scholars, 161; average daily attendance, 130; amount raised for support of schools, $2,086; from other sources, $345.58; total school revenue, $2,431.58.

CENTRE HARBOR.—Located in northern part of Belknap county; area, 7,550 acres. Railroad station, Meredith, on C. & M. railroad; banking town, Laconia. Population, 1880, 521; 1890, 479. Ratable polls, 143; assessed valuation of land and buildings, $176,442; stock in trade, $11,400; money on hand, at interest, or on deposit, $14,746; stock in banks or corporations in state, $600; valuation of assessed live stock (193 horses, 62 oxen, 215 cows, 94 other cattle, 158 sheep, 40 hogs), $21,490; total assessed valuation, $242,242. Taxes assessed, $2,613.34; rate of taxation, $1.08 on $100; surplus, $1,196.24. Agriculture and summer boarders are the principal occupations; but little manufacturing is done. Births, males, 2; females, 6; total, 8; marriages, 3; deaths, females, 8; total, 8; death rate per 1,000, 16.70. Town has 4 public schools; number of scholars, 82; average daily attendance, 46; amount raised for support of schools, $534; from other sources, $262.96; total school revenue, $796.96. One subscription library, 400 volumes.

CHARLESTOWN.—Located in southwest part of Sullivan county; area, 21,400 acres. Railroad stations, Charlestown, North Charlestown, South Charlestown, and Springfield, on B. & M. railroad; a banking town. Population, 1880, 1,587; 1890, 1,466. Ratable polls, 387; assessed valuation of land and buildings, $616,450; stock in trade, $19,650; money on hand, at interest, or on deposit, $17,790; stock in banks or corporations in state, $41,900; valuation of assessed live stock (470 horses, 44 oxen, 668 cows, 144 other cattle, 2,661 sheep, 45 hogs), $68,183; total assessed valuation, $830,115. Taxes assessed, $9,949.64; rate of taxation, $1.20 on $100; net debt, $3,634.97. Agriculture is the principal occupation. Lumbering and other pursuits are carried on to a considerable extent. Births, males, 7; females, 11; total, 18; marriages, 15; deaths, males, 16; females, 18; total, 34; death rate per 1,000, 23.19. Town has 14 public, 6 graded, and 1 high school; number of scholars, 285; average daily attendance, 207; amount raised for support of schools, $2,800; from other sources, $703; total school revenue, $3,503. One subscription library, 1,500 volumes.

CHATHAM.—Located in northeast part of Carroll county; area, 26,000 acres. Railroad stations, Conway and Fryeburg, Maine, on Maine Central railroad; banking town, Portland, Me. Population, 1880, 421; 1890, 329. Ratable polls, 78; assessed valuation of land and buildings, $68,983; mills and machinery, $1,700; valuation of assessed live stock (125 horses, 72 oxen, 187 cows, 96 other cattle, 300 sheep), $14,206; total assessed valuation, $92,689. Taxes assessed, $1,953.75; rate of taxation, $2.12 on $100; surplus, $240.40. Agriculture is the principal occupation. The manufacture of lumber is a minor industry. Births, male, 1; females, 2; total, 3; marriages, 7; deaths, males, 2; females, 2; total, 4; death rate per 1,000, 12.15. Town has 5 public schools; number of scholars, 97; average daily attendance, 74; amount raised for support of schools, $500; from other sources, $150.25; total school revenue, $650.25.

CHESTER.—Located in western part of Rockingham county. Railroad station, Derry or Hampstead, on B. & M. railroad; banking town, Derry Depot. Population, 1880, 1,136; 1890, 958. Ratable polls, 225; assessed valuation of

land and buildings, $293,372; mills and machinery, $4,300; stock in trade, $7,000; money on hand, at interest, or on deposit, $9,225; stock in banks or corporations in state, $6,200; valuation of assessed live stock (226 horses, 36 oxen, 377 cows, 78 other cattle, 124 sheep, 16 hogs), $29,014; total assessed valuation, $372,101. Taxes assessed, $4,651.42; rate of taxation, $1.25 on $100; surplus, $464.34. Agriculture is the principal occupation. Lumber is manufactured in a small way. Births, males, 2; females, 3; total, 5; marriages, 7; deaths, males, 8; females, 9; total, 17; death rate per 1,000, 17.74. Town has 8 public and 2 graded schools; number of scholars, 149; average daily attendance, 126; amount raised for support of schools, $852.50; from other sources, $682.60; total school revenue, $1,535.10. One free library, 860 volumes.

CHESTERFIELD.—Located in western part of Cheshire county; area, 29,439 acres. Railroad stations, Keene, on Fitchburg railroad; Brattleboro, on B. & M. railroad; banking town, Keene. Population, 1880, 1,173; 1890, 1,046. Ratable polls, 277; assessed valuation of land and buildings, $491,850; mills and machinery, $14,150; stock in trade, $12,970; money on hand, at interest, or on deposit, $30,627; stock in banks or corporations in state, $4,400; valuation of assessed live stock (374 horses, 107 oxen, 560 cows, 268 other cattle, 535 sheep, 37 hogs), $55,617; total assessed valuation, $637,639. Taxes assessed, $9,505; rate of taxation, $1.49 on $100; net debt, $3,750.48. Agriculture is the principal occupation. The manufacture of lumber and other wood products are minor industries. Births, males, 4; females, 9; total, 13; marriages, 7; deaths, males, 7; females, 7; total, 14; death rate per 1,000, 13.38. Town has 7 public and 2 graded schools; number of scholars, 169; average daily attendance, 115; amount raised for support of schools, $1,798.47; from other sources, $201.53; total school revenue, $2,000.

CHICHESTER.—Located in northeast part of Merrimack county; area, 11,978 acres. Railroad station, North Chichester, on Suncook Valley Branch C. & M. railroad; banking town, Concord. Population, 1880, 784; 1890, 661. Ratable polls, 177; assessed valuation of land and buildings,

$219,435; mills and machinery, $2,850; stock in trade, $4,100; money on hand, at interest, or on deposit, $1,859; stock in banks or corporations in state, $12,000; valuation of assessed live stock (235 horses, 74 oxen, 484 cows, 237 other cattle, 265 sheep, 4 hogs), $37,712; total assessed valuation, $295,846. Taxes assessed, $4,734.89; rate of taxation, $1.60 on $100; net debt, $421.72. Agriculture is the principal occupation. But little manufacturing is done. Births, males, 2; females, 5; total, 7; marriages, 2; deaths, males, 5; females, 5; total, 10; death rate per 1,000, 15.12. Town has 6 public schools; number of scholars, 96; average daily attendance, 78; amount raised for support of schools, $933.50; from other sources, $255.04; total school revenue, $1,188.54.

CLAREMONT.—Located in western part of Sullivan county; area, 25,830 acres. Railroad stations, Claremont, Claremont Junction, and West Claremont, on Concord Division B. & M. railroad; a banking town. Population, 1880, 4,704; 1890, 5,565. Ratable polls, 1,587; assessed valuation of land and buildings, $1,843,850; mills and machinery, $372,950; stock in trade, $203,700; money on hand, at interest, or on deposit, $129,600; stock in banks or corporations in state, $151,800; valuation of assessed live stock (947 horses, 100 oxen, 1,200 cows, 308 other cattle, 2,168 sheep, 77 hogs), $121,894; total assessed valuation, $3,038,630. Taxes assessed, $53,175.68; rate of taxation, $1.75 on $100; net debt, $97,269.44. Agriculture is the principal occupation; closely following it is the manufacture of cottons and woolens, paper, doors, sash and blinds, cigars, boots, shoes, and slippers, and other minor industries, which are carried on extensively. Births, males, 75; females, 56; total, 131; marriages, 57; deaths, males, 56; females, 47; total, 103; death rate per 1,000, 18.50. Town has 24 public, 14 graded, and 1 high school; number of scholars, 893; average daily attendance, 660; amount raised for support of schools, $10,700; from other sources, $1,858.80; total school revenue, $12,558.80. One free library, 6,200 volumes; annual appropriation, $250.

CLARKSVILLE.—Located in northern part of Coös county; area, 40,900 acres. Railroad station, West Stewartstown, on Maine Central railroad; banking town, Colebrook, or

Lancaster. Population, 1880, 328; 1890, 325. Ratable polls, 78; assessed valuation of land and buildings, $81,868; stock in trade, $24,256; money on hand, at interest, or on deposit, $5,275; valuation of assessed live stock (260 horses, 46 oxen, 255 cows, 59 other cattle, 1,040 sheep, 6 hogs), $22,240; total assessed valuation, $141,430. Taxes assessed, $1,440.67; rate of taxation, $1.02 on $100; surplus, $333.54. Agriculture is the principal occupation. The manufacture of starch is carried on to some extent. Births, males, 3; marriages, 3; deaths, males, 2; females, 5; total, 7; death rate per 1,000, 21.53. Town has 5 public schools; number of scholars, 86; average daily attendance, 64; amount raised for support of schools, $161; from other sources, $236.61; total school revenue, $397.61.

COLEBROOK.—Located in northwest part of Coös county; area, 25,000 acres. Railroad station, Colebrook, on Maine Central railroad; a banking town. Population, 1880, 1,580; 1890, 1,730. Ratable polls, 455; assessed valuation of land and buildings, $489,175; stock in trade, $75,985; money on hand, at interest, or on deposit, $96,315; stock in banks or corporations in state, $37,200; valuation of assessed live stock (881 horses, 56 oxen, 885 cows, 500 other cattle, 2,491 sheep, 76 hogs), $75,777; total assessed valuation, $820,612. Taxes assessed, $9,844.73; rate of taxation, $1.20 on $100; surplus, $808.46. Agriculture is the principal occupation. The manufacture of starch is an important industry, and several other branches of business are carried on. Births, males, 11; females, 11; total, 22; marriages, 23; deaths, males, 20; females, 14; total, 34; death rate per 1,000, 19.58. Town has 5 public, 3 graded, and 1 high school; number of scholars, 334; average daily attendance, 246; amount raised for support of schools, $2,412.12; from other sources, $976.60; total school revenue, $3,388.80. One free library, 2,000 volumes; annual appropriation, $400.

COLUMBIA.—Located in western part of Coös county; area, 37,822 acres. A station on Maine Central railroad; banking town, Colebrook or Lancaster. Population, 1880, 762; 1890, 605. Ratable polls, 160; assessed valuation of land and buildings, $193,395; mills and machinery, $10,850; stock in trade, $9,000; money on hand, at interest, or on deposit, $924; stock in banks or corporations in state,

$1,000; valuation of assessed live stock (376 horses, 50 oxen, 513 cows, 223 other cattle, 869 sheep, 28 hogs), $33,914; total assessed valuation, $267,093. Taxes assessed, $4,255.92; rate of taxation, $1.59 on $100; surplus, $270.82. Agriculture is the principal occupation. The manufacture of lumber is a leading industry. Births, males, 6; females, 5; total, 11; marriages, 5; deaths, males, 4; females, 2; total, 6; death rate per 1,000, 9.91. Town has 10 public schools; number of scholars, 132; average daily attendance, 102; amount raised for support of schools, $1,550; from other sources, $304.15; total school revenue, $1,854.15.

CONCORD.—Located in eastern part of Merrimack county; area, 40,919 acres. A station on C. & M. railroad, and Concord Division B. & M. railroad; a banking town. Population, 1880, 13,843; 1890, 17,004. Ratable polls, 4,375; assessed valuation of land and buildings, $8,387,870; mills and machinery, $125,000; stock in trade, $719,465; money on hand, at interest, or on deposit, $263,265; stock in banks or corporations in state, $4,375; valuation of assessed live stock (1,686 horses, 84 oxen, 1,331 cows, 159 other cattle, 334 sheep, 96 hogs), $154,736; total assessed valuation, $10,894,907. Taxes assessed, $204,585.27; rate of taxation, $1.80 on $100; net debt, $67,962.25. Manufacturing and mechanical pursuits are the chief industries. The manufacture of granite, coaches and carriages, harness, belting, axles, pianos, silver-ware, etc., have given the city great renown, and in minor pursuits it has gained an enviable reputation. Births, males, 233; females, 192; total, 415; marriages, 176; deaths, males, 227; females, 188; total, 415; death rate per 1,000, 24.40. Town has 61 public, 50 graded, and 1 high school; number of scholars, 2,999; average daily attendance, 2,101; amount raised for support of schools, $32,225; from other sources, $33,217.96; total school revenue, $65,442.96. One free library, 16,000 volumes; annual appropriation, $6,000.

CONWAY.—Located in eastern part of Carroll county; area, 23,040 acres. Railroad stations, Conway and North Conway, on B. & M. and Maine Central railroads; banking town, Rochester or Portland, Me. Population, 1880, 2,094;

1890, 2,331. Ratable polls, 887; assessed valuation of land and buildings, $589,512; mills and machinery, $21,400; stock in trade, $66,524; money on hand, at interest, or on deposit, $17,424; valuation of assessed live stock (772 horses, 102 oxen, 657 cows, 145 other cattle, 193 sheep, 27 hogs), $56,296; total assessed valuation, $844,384. Taxes assessed, $18,708.15; rate of taxation, $2.22 on $100; net debt, $14,569.45. Agriculture is the principal occupation, with summer boarders. The manufacture of lumber, spools and bobbins, shooks, granite, straw board, and boxes are also important industries. Births, males, 26; females, 39; total, 65; marriages, 43; deaths, males, 22; females, 27; total, 49; death rate per 1,000, 21.02. Town has 18 public and 4 graded schools; number of scholars, 542; average daily attendance, 429; amount raised for support of schools, $5,235.50; from other sources, $1,194.51; total school revenue, $6,430.01.

CORNISH.— Located in northwestern part of Sullivan county; area, 23,160 acres. Railroad station, Windsor, Vt., on B. & M. railroad; Claremont, on Concord Division B. & M. railroad; banking town, Claremont or Windsor, Vt. Population, 1880, 1,156; 1890, 954. Ratable polls, 222; assessed valuation of land and buildings, $366,890; mills and machinery, $6,250; stock in trade, $5,782; money on hand, at interest, or on deposit, $6,324; stock in banks or corporations in state, $8,800; valuation of assessed live stock (400 horses, 89 oxen, 767 cows, 287 other cattle, 1,575 sheep, 82 hogs), $59,808; total assessed valuation, $476,984. Taxes assessed, $6,713.39; rate of taxation, $1.41 on $100; surplus, $827.10. Agriculture is the principal occupation; but little manufacturing is done. Births, males, 8; females, 6; total, 14; marriages, 8; deaths, males, 10; females, 12; total, 22; death rate per 1,000, 23.06. Town has 3 public schools; number of scholars, 142; average daily attendance, 138; amount raised for support of schools, $852; from other sources, $1,527.04; total school revenue, $2,379.04.

CROYDON.—Located in central part of Sullivan county; area, 26,000 acres. Railroad station, Newport, on Concord Division B. & M. railroad; banking town, Newport. Population, 1880, 608; 1890, 512. Ratable polls, 114; assessed valuation of land and buildings, $149,475; stock in trade,

$2,825; money on hand, at interest, or on deposit, $10,774; stock in banks or corporations in state, $5,380; valuation of assessed live stock (204 horses, 84 oxen, 313 cows, 132 other cattle, 1,038 sheep, 12 hogs), $29,663; total assessed valuation, $209,692. Taxes assessed, $3,159.84; rate of taxation, $1.51 on $100; net debt, $608.25. Agriculture is the principal occupation. Births, males, 7; females, 8; total, 15; marriages, 3; deaths, males, 5; females, 6; total, 11; death rate per 1,000, 21.48. Town has 4 public schools; number of scholars, 97; average daily attendance, 70; amount raised for support of schools, $318.50; from other sources, $405.57; total school revenue, $724.07.

Dalton.—Located in southwest part of Coös county; area, 16,455 acres. A railroad station on C. & M. railroad; banking town, Lancaster or Littleton. Population, 1880, 570; 1890, 596. Ratable polls, 138; assessed valuation of land and buildings, $111,700; stock in trade, $9,200; valuation of assessed live stock (169 horses, 46 oxen, 374 cows, 167 other cattle, 746 sheep, 10 hogs), $21,520; total assessed valuation, $156,225. Taxes assessed, $6,264.42; rate of taxation, $4.01 on $100; net debt, $17,652.43. Agriculture is the principal occupation. Births, males, 1; females, 3; total, 4; marriages, 2; deaths, males, 3; females, 5; total, 8; death rate per 1,000, 13.42. Town has 5 public schools; number of scholars, 111; average daily attendance, 70; amount raised for support of schools, $663.90; from other sources, $148.48; total school revenue, $812.38. One free library, 569 volumes; annual appropriation, $50.

Danbury.—Located in northwest part of Merrimack county; area, 19,000 acres. A railroad station on Concord Division B. & M. railroad; banking town, Concord or Franklin. Population, 1880, 760; 1890, 683. Ratable polls, 169; assessed valuation of land and buildings, $166,120; mills and machinery, $2,600; stock in trade, $7,530; money on hand, at interest, or on deposit, $7,155; valuation of assessed live stock (221 horses, 122 oxen, 495 cows, 174 other cattle, 616 sheep, 1 hog), $28,544; total assessed valuation, $229,089. Taxes assessed, $3,157.52; rate of taxation, $1.38 on $100; surplus, $1,674.89. Agriculture is the principal occupation. The manufacture of lumber and shingles are minor industries. Births, males, 10; females,

3; total, 13; marriages, 6; deaths, males, 7; females, 6; total, 13; death rate per 1,000, 19.03. Town has 8 public schools; number of scholars, 128; average daily attendance, 99; amount raised for support of schools, $633; from other sources, $165.12; total school revenue, $798.12. One free library.

DANVILLE.—Located in central part of Rockingham county; area, 7,000 acres. Railroad stations, Plaistow and Newton Junction, on B. & M. railroad; banking town, Haverhill, Mass. Population, 1880, 613; 1890, 666. Ratable polls, 179; assessed valuation of land and buildings, $157,609; mills and machinery, $3,150; stock in trade, $11,600; valuation of assessed live stock (138 horses, 18 oxen, 124 cows, 5 other cattle, 10 sheep, 8 hogs), $12,566; total assessed valuation, $203,006. Taxes assessed, $3,045.09; rate of taxation, $1.50 on $100; net debt, $2,585.48. Agriculture is the principal occupation. The manufacture of lumber, packing boxes, and shoes are minor industries. Births, males, 4; females, 4; total, 8; marriages, 5; deaths, males, 6; females, 4; total, 10; death rate per 1,000, 15.01. Town has 4 public schools; number of scholars, 93; average daily attendance, 69; amount raised for support of schools, $928.50; from other sources, $128.01; total school revenue, $1,056.51.

DEERFIELD.—Located in northwest part of Rockingham county; area, 28,254 acres. Railroad station, Candia, on C. & M. railroad; banking town, Manchester. Population, 1880, 1,569; 1890, 1,220. Ratable polls, 344; assessed valuation of land and buildings, $329,408; mills and machinery, $4,450; stock in trade, $11,272; money on hand, at interest, or on deposit, $20,478; stock in banks or corporations in state, $4,524; valuation of assessed live stock (410 horses, 182 oxen, 710 cows, 216 other cattle, 347 sheep, 3 hogs), $50,674; total assessed valuation, $456,416. Taxes assessed, $8,958; rate of taxation, $1.96 on $100; net debt, $2,634.96. Agriculture is the principal occupation. Births, males, 15; females, 6; total, 21; marriages, 7; deaths, males, 19; females, 14; total, 33; death rate per 1,000, 27.04. Town has 12 public schools; number of scholars, 236; average daily attendance, 196; amount raised for support of schools, $1,004.50; from other sources,

$889.85; total school revenue, $1,894.35. One free library, 2,000 volumes; annual appropriation, $50.

DEERING.—Located in northern part of Hillsborough county; area, 20,057 acres. Railroad stations, Hillsborough Bridge and West Deering on B. & M. railroad; banking town, Hillsborough Bridge or Manchester. Population, 1880, 674; 1890, 531. Ratable polls, 137; assessed valuation of land and buildings, $157,125; mills and machinery, $300; stock in trade, $1,175; money on hand, at interest, or on deposit, $3,657; stock in banks or corporations in state, $2,000; valuation of assessed live stock (183 horses, 84 oxen, 525 cows, 139 other cattle, 274 sheep), $27,119; total assessed valuation, $207,366. Taxes assessed, $3,722.43; rate of taxation, $1.60 on $100; net debt, $983.41. Agriculture is the principal occupation. Births, males, 3; female, 1; total, 4; marriages, 1; deaths, males, 9; females, 4; total, 13; death rate per 1,000, 24.48. Town has 7 public schools; number of scholars, 99; average daily attendance, 79; amount raised for support of schools, $808.36; from other sources, $313.78; total school revenue, $1,122.14.

DERRY.—Located in southwest part of Rockingham county; area, improved land, 12,120 acres. Railroad station, West Derry, on B. & M. railroad; banking town, Derry Depot. Population, 1880, 2,140; 1890, 2,604. Ratable polls, 628; assessed valuation of land and buildings, $887,169; mills and machinery, $24,150; stock in trade, $46,010; money on hand, at interest, or on deposit, $6,940; stock in banks or corporations in state, $24,720; valuation of assessed live stock (587 horses, 30 oxen, 850 cows, 120 other cattle, 19 sheep, 36 hogs), $49,624; total assessed valuation, $1,108,089. Taxes assessed, $19,816.53; rate of taxation, $1.78 on $100; net debt, $12,046.53. The manufacture of shoes is the principal industry; of dairy products, hosiery, carriages, and boxes, minor industries. Births, males, 28; females, 26; total, 54; marriages, 23; deaths, males, 29; females, 17; total, 46; death rate per 1,000, 18.04. Town has 12 public and 2 graded schools; number of scholars, 431; average daily attendance, 300; amount raised for support of schools, $5,305.25; from other sources $994.86; total school revenue, $6,300.11. Two free libraries, 2,897 volumes.

DORCHESTER.—Located in southern part of Grafton county; area, 23,040 acres. Railroad station, Rumney, on C. & M. railroad; banking town, Bristol or Plymouth. Population, 1880, 585; 1890, 379. Ratable polls, 100; assessed valuation of land and buildings, $81,268; stock in trade, $6,100; valuation of assessed live stock (139 horses, 148 oxen, 171 cows, 48 other cattle, 605 sheep, 7 hogs), $17,802; total assessed valuation, $115,170. Taxes assessed, $3,743.02; rate of taxation, $3.25 on $100; net debt, $12,485.43. Agriculture is the principal occupation. The manufacture of lumber is also carried on to a considerable extent. Births, male, 1; females, 2; total, 3; marriages, 3; deaths, males, 7; females, 3; total, 10; death rate per 1,000, 26.38. Town has 6 public schools; number of scholars, 77; average daily attendance, 64; amount raised for support of schools, $168; from other sources, $382.65; total school revenue, $550.65.

DOVER.—Located in southeast part of Strafford county; a station on B. & M. railroad; a banking town. Population, 1880, 11,687; 1890, 12,790. Ratable polls, 3,283; assessed valuation of land and buildings, $5,637,110; mills and machinery, $1,191,278; stock in trade, $1,214,817; money on hand, at interest, or on deposit, $211,372; stock in banks or corporations in state, $230,604; valuation of assessed live stock (1,063 horses, 44 oxen, 840 cows, 144 other cattle, 136 sheep, 27 hogs), $113,896; total assessed valuation, $9,065,157. Taxes assessed, $163,172.83; rate of taxation, $1.80 on $100; net debt, $600,633.94. The manufacture of cotton and woollen goods, boots and shoes, are the principal industries. The manufacture of clothing, machinery, brick, carriages and wagons, glue, harnesses, boxes, trunks, soap, etc., are also important industries. Births, males, 147; females, 149; total, 296; marriages, 157; deaths, males, 161; females, 170; total, 331; death rate per 1,000, 25.87. Town has 37 public, 29 graded, and 1 high school; number of scholars, 1,473; average daily attendance, 1,053; amount raised for support of schools, $29,585.90; from other sources, $2,301.85; total school revenue, $31,887.75. One free library, 16,200 volumes; annual appropriation, $4,750.

DUBLIN.—Located in eastern part of Cheshire county area, 26,860 acres. Railroad station, Peterborough on Ches-

hire Division Fitchburg railroad, and Concord Division B. & M. railroad; banking town, Keene, Peterborough, or East Jaffrey. Population, 1880, 456; 1890, 582. Ratable polls, 110; assessed valuation of land and buildings, $408,800; mills and machinery, $1,750; stock in trade, $7,060; money on hand, at interest, or on deposit, $40,859; stock in banks or corporations in state, $8,300; valuation of assessed live stock (202 horses, 46 oxen, 268 cows, 89 other cattle, 75 sheep, 9 hogs), $26,499; total assessed valuation, $512,823. Taxes assessed, $6,564.18; rate of taxation, $1.28 on $100; surplus, $1,469.75. Agriculture is the principal occupation. The manufacture of lumber is a minor industry. Births, males, 3; females, 2; total, 5; marriage, 1; deaths, males, 7; females, 3; total, 10; death rate per 1,000, 17.18. Town has 6 public schools; number of scholars, 105; average daily attendance, 88; amount raised for support of schools, $561.78; from other sources, $733.22; total school revenue, $1,305. One free library, 2,395 volumes; annual appropriation, $100.

DUMMER.—Located in central part of Coös county; area, 23,041 acres. Railroad station, Berlin Falls, on C. & M. railroad and Grand Trunk railway; banking town, Lancaster or Berlin Falls. Population, 1880, 464; 1890, 455. Ratable polls, 103; assessed valuation of land and buildings, $75,775; mills and machinery, $4,000; stock in trade, $34,660; money on hand, at interest, or on deposit, $1,925; valuation of assessed live stock (180 horses, 12 oxen, 210 cows, 72 other cattle, 349 sheep, 3 hogs), $15,506; total assessed valuation, $142,206. Taxes assessed, $3,199; rate of taxation, $2.25 on $100; net debt, $3,706.58. Agriculture is the principal occupation. The manufacture of lumber and wood pulp is a minor industry. Births, males, 5; females, 3; total, 8; marriages, 3; deaths, males, 3; females, 2; total, 5; death rate per 1,000, 10.98. Town has 5 public schools; number of scholars, 80; average daily attendance, 60; amount raised for support of schools, $500; from other sources, $359.80; total school revenue, $859.80.

DUNBARTON.—Located in southern part of Merrimack county; area, 21,000 acres. Railroad station, East Weare, on North Weare Branch C. & M. railroad; banking town, Manchester. Population, 1880, 708; 1890, 524. Ratable

polls, 135; assessed valuation of land and buildings, $253,855; mills and machinery, $2,000; stock in trade, $22,680; money on hand, at interest, or on deposit, $14,065; stock in banks or corporations in state, $1,300; valuation of assessed live stock (188 horses, 89 oxen, 625 cows, 187 other cattle, 147 sheep, 14 hogs), $36,748; total assessed valuation, $346,248. Taxes assessed, $3,785.88; rate of taxation, $1.09 on $100; surplus, $621.61. Agriculture is the principal occupation. Births, male, 1; females, 4; total, 5; marriages, 7; deaths, males, 7; females, 6; total, 13; death rate per 1,000, 24.80. Town has 4 public schools; number of scholars, 99; average daily attendance, 64; amount raised for support of schools, $891; from other sources, $602.55; total school revenue, $1,493.55. One free library, 334 volumes.

DURHAM.—Located in southern part of Strafford county; area, 14,970 acres. Seat of N. H. College of Agriculture and Mechanic Arts. A station on B. & M. railroad; banking town, Dover. Population, 1880, 962; 1890, 871. Ratable polls, 233; assessed valuation of land and buildings, $332,186; mills and machinery, $1,200; stock in trade, $11,500; money on hand, at interest, or on deposit, $11,300; stock in banks or corporations in state, $30,900; valuation of assessed live stock (240 horses, 58 oxen, 387 cows, 59 other cattle, 197 sheep), $32,388; total assessed valuation, $533,308. Taxes assessed, $9,067.95; rate of taxation, $1.70 on $100; surplus, $1,273.96. Agriculture is the principal occupation. The manufacture of lumber, brick, and building supplies are minor industries. Births, males, 6; females, 5; total, 11; marriages, 8; deaths, males, 14; females, 13; total, 27; death rate per 1,000, 30.99. Town has 6 public schools; number of scholars, 151; average daily attendance, 112; amount raised for support of schools, $1,127; from other sources, $471.18; total school revenue, $1,598.18. One free library, 3,000 volumes.

EAST KINGSTON.—Located in southern part of Rockingham county; area, improved land, 3,445 acres. A railroad station on B. & M. railroad; banking town, Exeter. Population, 1880, 576; 1890, 461. Ratable polls, 119; assessed valuation of land and buildings, $185,646; mills and machinery, $4,800; stock in trade, $12,100; money on hand,

at interest, or on deposit, $2,550; stock in banks or corporations in state, $100; valuation of assessed live stock (146 horses, 27 oxen, 195 cows, 39 other cattle, 55 sheep, 6 hogs), $15,106; total assessed valuation, $232,202. Taxes assessed, $4,333; rate of taxation, $1.86 on $100; surplus, $153.72. Agriculture is the principal occupation. The manufacture of brick is a minor industry. Births, male, 1; female, 1; total, 2; marriages, 4; deaths, males, 6; females, 9; total, 15; death rate per 1,000, 32.53. Town has 4 public schools; number of scholars, 77; average daily attendance, 45; amount raised for support of schools, $446; from other sources, $450.88; total school revenue, $896.88.

EASTON.—Located in northern part of Grafton county; area, 19,000 acres. Railroad stations, Bath and Lisbon, on C. & M. railroad; banking town, Lisbon or Woodsville. Population, 1880, 302; 1890, 248. Ratable polls, 85; assessed valuation of land and buildings, $72,571; stock in trade, $17,700; money on hand, at interest, or on deposit, $3,766; stock in banks or corporations in state, $500; valuation of assessed live stock (178 horses, 101 oxen, 106 cows, 73 other cattle, 210 sheep), $16,383; total assessed valuation, $119,420. Taxes assessed, $1,493.45; rate of taxation, $1.25 on $100; surplus, $859.85. Agriculture is the principal occupation. The manufacture of lumber is also quite an important industry. Births, males, 5; marriages, 2; deaths, male, 1; females, 2; total 3; death rate per 1,000, 12.09. Town has 3 public schools; number of scholars, 52; average daily attendance, 39; amount raised for support of schools, $366.85; from other sources, $119.40; total school revenue, $486.25.

EATON.—Located in eastern part of Carroll county; area, 33,637 acres. Railroad station, Conway, on Maine Central and B. & M. railroads; banking town, Portland, Me. Population, 1880, 629; 1890, 514. Ratable polls, 132; assessed valuation of land and buildings, $96,814; mills and machinery, $1,400; stock in trade, $6,510; money on hand, at interest, or on deposit, $1,600; valuation of assessed live stock (143 horses, 96 oxen, 196 cows, 90 other cattle, 188 sheep), $17,022; total assessed valuation, $136,672. Taxes assessed, $2,869.65; rate of taxation, $2.10 on $100; surplus, $324.41. Agriculture is the principal occupation. The manufacture of lumber is a minor industry. Births,

males, 2; females, 6; total, 8; marriages, 7; deaths, males, 3; female, 1; total, 4; death rate per 1,000, 7.78. Town has 7 public schools; number of scholars, 126; average daily attendance, 107; amount raised for support of schools, $541; from other sources, $314.10; total school revenue, $855.10.

EFFINGHAM.—Located in southeast part of Carroll county; area, 30,000 acres. Railroad stations, East Wakefield and Ossipee Centre, on B. & M. railroad; banking town, Wolfeborough. Population, 1880, 865; 1890, 720. Ratable polls, 161; assessed valuation of land and buildings, $171,825; mills and machinery, $6,425; stock in trade, $6,600; money on hand, at interest, or on deposit, $2,700; stock in banks or corporations in state, $400; valuation of assessed live stock (238 horses, 108 oxen, 280 cows, 114 other cattle, 52 sheep, 13 hogs), $25,878; total assessed valuation, $229,928. Taxes assessed, $4,023.74; rate of taxation, $1.79 on $100; surplus, $327.70. Agriculture is the principal occupation. The manufacture of lumber, wooden rakes, and clothing are minor industries. Births, males, 3; females, 6; total, 9; marriages, 4; deaths, males, 7; females, 9; total, 16; death rate per 1,000, 22.22. Town has 7 public schools; number of scholars, 135; average daily attendance, 110; amount raised for support of schools, $622; from other sources, $455.84; total school revenue, $1,077.84.

ELLSWORTH.—Located in central part of Grafton county; area, 16,606 acres. Railroad station, Thornton, on C. & M. railroad; banking town, Plymouth, or Laconia. Population, 1880, 209; 1890, 150. Ratable polls, 41; assessed valuation of land and buildings, $20,338; valuation of assessed live stock (36 horses, 44 oxen, 60 cows, 19 other cattle, 230 sheep), $4,887; total assessed valuation, $29,325. Taxes assessed, $965.92; rate of taxation, $3.20 on $100; surplus, $250. Agriculture is the principal occupation. Births, male, 1; females, 2; total, 3; marriages, 2; deaths, males, 2; females, 2; total, 4; death rate per 1,000, 26.66. Town has 1 public school; number of scholars, 23; average daily attendance, 21; amount raised for support of schools, $100; from other sources, $38.40; total school revenue, $138.40.

ENFIELD.—Located in southern part of Grafton county; area, 24,060 acres. A railroad station on Concord Division B. & M. railroad; banking town, Concord. Population, 1880, 1,680; 1890, 1,439. Ratable polls, 349; assessed valuation of land and buildings, $414,690; mills and machinery, $15,400; stock in trade, $27,050; money on hand, at interest, or on deposit, $30,585; stock in banks or corporations in state, $7,400; valuation of assessed live stock (673 horses, 146 oxen, 600 cows, 177 other cattle, 508 sheep, 32 hogs), $51,800; total assessed valuation, $587,185. Taxes assessed, $9,759.07; rate of taxation, $1.66 on $100; net debt, $458. Agriculture is the principal occupation. The manufacture of cassimeres is also an important industry. Births, males, 8; females, 7; total, 15; marriages, 14; deaths, males, 16; females, 23; total, 39; death rate per 1,000, 27.10. Town has 9 public and 2 graded schools; number of scholars, 195; average daily attendance, 178; amount raised for support of schools, $1,290.37; from other sources, $1,124.93; total school revenue, $2,415.30. One subscription library, 566 volumes.

EPPING.—Located in north part of Rockingham, county; area, 12,960 acres. Railroad stations, East and West Epping, and Epping Junction, on C. & M. and B. & M. railroads; banking town, Exeter or Newmarket. Population, 1880, 1,536; 1890, 1,721. Ratable polls, 412; assessed valuation of land and buildings, $527,494; mills and machinery, $17,400; stock in trade, $57,500; money on hand, at interest, or on deposit, $21,700; stock in banks or corporations in state, $9,900; valuation of assessed live stock (326 horses, 62 oxen, 316 cows, 132 other cattle, 202 sheep, 6 hogs), $35,952; total assessed valuation, $712,101. Taxes assessed, $10,756.15; rate of taxation, $1.51 on $100; net debt, $23,418.41. Agriculture is the principal occupation. The manufacture of shoes, brick, and wooden boxes are also important industries. Births, males, 23; females, 35; total, 58; marriages, 7; deaths, males, 24; females, 24; total, 48; death rate per 1,000, 27.89. Town has 10 public, 4 graded, and 1 high school; number of scholars, 290; average daily attendance, 199; amount raised for support of schools, $1,883; from other sources, $543.56; total school revenue, $2,426.56. One free library, 263 volumes; annual appropriation, $50.

EPSOM.—Located in eastern part of Merrimack county; area, 19,209 acres. Railroad stations, Epsom and Short Falls, on Suncook Valley Branch C. & M. railroad; banking town, Concord. Population, 1880, 909; 1890, 815. Ratable polls, 227; assessed valuation of land and buildings, $252,329; mills and machinery, $6,800; stock in trade, $16,450; money on hand, at interest, or on deposit, $2,100; stock in banks or corporations in state, $4,900; valuation of assessed live stock (275 horses, 80 oxen, 632 cows, 154 other cattle, 341 sheep, 24 hogs), $40,188; total assessed valuation, $346,675. Taxes assessed, $5,200.53; rate of taxation, $1.50 on $100; net debt, $1,395.69. Agriculture is the principal occupation. The manufacture of lumber is a minor industry. Births, males, 5; females, 2; total, 7; marriage, 1; deaths, males, 7; females, 8; total, 15; death rate per 1,000, 18.40. Town has 7 public schools; number of scholars, 121; average daily attendance, 77; amount raised for support of schools, $1,060; from other sources, $570.31; total school revenue, $1,630.31.

ERROL.—Located in eastern part of Coös county. Railroad stations, Colebrook, on Maine Central railroad; Berlin Falls, on Grand Trunk railroad; Berlin, on C. & M. railroad; banking town, Colebrook or Berlin Falls. Population, 1880, 161; 1890, 178. Ratable polls, 56; assessed valuation of land and buildings, $87,558; stock in trade, $15,968; money on hand, at interest, or on deposit, $572; valuation of assessed live stock (122 horses, 6 oxen, 89 cows, 49 other cattle, 236 sheep, 4 hogs), $9,838; total assessed valuation, $120,006. Taxes assessed, $3,419.07; rate of taxation, $2.85 on $100; net debt, $833.15. Agriculture is the principal occupation. The manufacture of lumber is a minor industry. Births, males, 5; female, 1; total, 6; marriages, 4; deaths, male, 1; female, 1; total, 2; death rate per 1,000, 11.23. Town has 3 public schools; number of scholars, 41; average daily attendance, 36; amount raised for support of schools, $1,400; from other sources, $151.80; total school revenue, $1,551.80.

EXETER.—Located in central part of Rockingham county; area, 35,000 acres. A railroad station on B. & M. railroad; a banking town. Population, 1880, 3,569; 1890, 4,284. Ratable polls, 856; assessed valuation of land and buildings,

$2,017,499; mills and machinery, $70,000; stock in trade, $131,350; money on hand, at interest, or on deposit, $430,100; stock in banks or corporations in state, $63,400; valuation of assessed live stock (538 horses, 36 oxen, 354 cows, 61 other cattle, 51 sheep, 15 hogs), $52,380; total assessed valuation, $2,873,099. Taxes assessed, $54,588; rate of taxation, $1.90 on $100; net debt, $89,568.36. Agriculture is the principal occupation. The manufacture of cotton goods, brass goods, rubber goods, boots and shoes, etc., are important industries. Births, males, 42; females, 41; total, 83; marriages, 51; deaths, males, 43; females, 37; total, 80; death rate per 1,000, 18.67. Town has 12 public, and 10 graded schools; number of scholars, 630; average daily attendance, 406; amount raised for support of schools, $7,976.50; from other sources, $1,320.49; total school revenue, $9,296.99. One free library, 7,475 volumes; annual appropriation, $700.

FARMINGTON.—Located in central part of Strafford county; area, 21,000 acres. A railroad station on B. & M. railroad; a banking town. Population, 1880, 3,044; 1890, 3,064. Ratable polls, 785; assessed valuation of land and buildings, $983,420; mills and machinery, $7,000; stock in trade, $59,000; money on hand, at interest, or on deposit, $125,894; stock in banks or corporations in state, $27,700; valuation of assessed live stock (519 horses, 78 oxen, 590 cows, 210 other cattle, 220 sheep), $55,501; total assessed valuation, $1,341,875. Taxes assessed, $32,947.95; rate of taxation, $2.45 on $100; net debt, $45,078.07. The manufacture of boots and shoes, and shoe products, are the principal industries. Farming is also carried on to a considerable extent. Births, males, 17; females, 23; total, 40; marriages, 32; deaths, males, 24; females, 39; total, 63; death rate per 1,000, 20.56. Town has 17 public, 8 graded, and 1 high school; number of scholars, 485; average daily attendance, 368; amount raised for support of schools, $2,814; from other sources, $7,423.54; total school revenue, $10,237.54. One free library, 300 volumes.

FITZWILLIAM.—Located in southern part of Cheshire county; area, 26,900 acres. A railroad station on Fitchburg railroad; banking town, Keene or Winchendon, Mass. Population, 1880, 1,187; 1890, 1,122. Ratable

polls, 255; assessed valuation of land and buildings, $345,785; mills and machinery, $15,375; stock in trade, $18,370; money on hand, at interest, or on deposit, $28,172; stock in banks or corporations in state, $3,750; valuation of assessed live stock (242 horses, 42 oxen, 332 cows, 76 other cattle, 87 sheep, 1 hog), $30,566; total assessed valuation, $470,912. Taxes assessed, $6,263.12; rate of taxation, $1.33 on $100; net debt, $556.68. Agriculture is the principal occupation. The manufacture of lumber, tubs, firkins, pails, and stone are important industries. Births, males, 8; females, 8; total, 16; marriages, 6; deaths, males, 10; females, 16; total, 26; death rate per 1,000, 23.17. Town has 8 public and 4 graded schools; number of scholars, 237; average daily attendance, 212; amount raised for support of schools, $1,500; from other sources, $569.45; total school revenue, $2,069.45. One free library, 4,000 volumes; annual appropriation, $50.

FRANCESTOWN.—Located in central part of Hillsborough county; area, 18,760 acres. Railroad station, New Boston, on C. & M. railroad; a banking town. Population, 1880, 937; 1890, 837. Ratable polls, 198; assessed valuation of land and buildings, $308,168; mills and machinery, $3,700; stock in trade, $16,050; money on hand, at interest, or on deposit, $16,250; stock in banks or corporations in state, $2,800; valuation of assessed live stock (258 horses, 52 oxen, 599 cows, 110 other cattle, 292 sheep, 7 hogs), $36,348; total assessed valuation, $406,156. Taxes assessed, $5,523.72; rate of taxation, $1.33 on $100; surplus, $169.69. Agriculture is the principal occupation. The manufacture of soapstone goods, lumber and shingles, kits and pails, are important industries. Births, males, 8; females, 7; total, 15; marriages, 7; deaths, males, 7; females, 6; total, 13; death rate per 1,000, 15.54. Town has 7 public, and 2 graded schools; number of scholars, 144; average daily attendance, 93; amount raised for support of schools, $1,178.50; from other sources, $346.18; total school revenue, $1,524.68. One free library, 2,100 volumes; annual appropriation, $125.

FRANCONIA.—Located in northern part of Grafton county; area, 32,928 acres. Railroad station, Littleton, on C. & M. railroad; banking town, Littleton. Population,

1880, 550; 1890, 594. Ratable polls, 152; assessed valuation of land and buildings, $308,883; stock in trade, $6,475; money on hand, at interest, or on deposit, $27,860; stock in banks or corporations in state, $7,400; valuation of assessed live stock (233 horses, 30 oxen, 227 cows, 34 other cattle, 161 sheep, 29 hogs), $20,905; total assessed valuation, $390,433. Taxes assessed, $5,465.63; rate of taxation, $1.40 on $100; net debt, $2,834.93. Agriculture and the entertainment of summer visitors are the principal occupations. The manufacture of bobbins, boots and shoes, and harness, are minor industries. Births, males, 4; females, 3; total, 7; marriages, 14; deaths, males, 16; females, 23; total, 39; death rate per 1,000, 10.10. Town has 4 public and 2 graded schools; number of scholars, 108; average daily attendance, 59; amount raised for support of schools, $677.50; from other sources, $160.84; total school revenue, $838.34. One free library, 736 volumes; annual appropriation, $150.

FRANKLIN. — Located in northern part of Merrimack county; area, 9,200 acres. A station on Concord Division B. & M. railroad; a banking town. Population, 1880, 3,265; 1890, 4,085. Ratable polls, 1,057; assessed valuation of land and buildings, $1,308,655; mills and machinery, $578,100; stock in trade, $235,975; money on hand, at interest, or on deposit, $7,300; stock in banks or corporations in state, $49,000; valuation of assessed live stock (698 horses, 65 oxen, 571 cows, 77 other cattle, 463 sheep, 14 hogs), $64,670; total assessed valuation, $2,353,710. Taxes assessed, $37,659.36; rate of taxation, $1.60 on $100; net debt, $72,866.77. The manufacture of hosiery, machinery, needles, blankets and flannels, etc., are the most important industries. Births, males, 47; females, 43; total, 90; marriages, 53; deaths, males, 34; females, 43; total, 77; death rate per 1,000, 18.84. Town has 20 public, 13 graded, and 1 high school; number of scholars, 1,168; average daily attendance, 568; amount raised for support of schools, $9,500; from other sources, $1,785.29; total school revenue, $11,285.29. Three free libraries, 3,000 volumes.

FREEDOM.—Located in central part of Carroll county; area, 7,846 acres. Railroad station, Centre Ossipee, on B. & M. railroad; banking town, Limerick, Me. Popula-

tion, 1880, 714; 1890, 630. Ratable polls, 191; assessed valuation of land and buildings, $194,825; mills and machinery, $1,700; stock in trade, $9,100; money on hand, at interest, or on deposit, $3,430; stock in banks or corporations in state, $3,000; valuation of assessed live stock (289 horses, 139 oxen, 331 cows, 174 other cattle, 494 sheep), $32,397; total assessed valuation, $266,397. Taxes assessed, $4,848.42; rate of taxation, $1.82 on $100; surplus, $298.34. Agriculture is the principal occupation. Births, male, 1; females, 7; total, 8; marriages, 9; deaths, males, 3; total, 3; death rate per 1,000, 16.04. Town has 6 public schools; number of scholars, 133; average daily attendance, 71; amount raised for support of schools, $550; from other sources, $173.72; total school revenue, $723.72.

FREMONT. — Located in central part of Rockingham county; area, 10,320 acres. A railroad station on B. & M. railroad; banking town, Exeter or Rochester. Population, 1880, 624; 1890, 726. Ratable polls, 145; assessed valuation of land and buildings, $181,118; mills and machinery, $10,500; stock in trade, $26,285; stock in banks or corporations in state, $300; valuation of assessed live stock, (156 horses, 27 oxen, 193 cows, 27 other cattle, 49 sheep, 10 hogs), $16,547; total assessed valuation, $250,100. Taxes assessed, $3,101.35; rate of taxation, $1.24 on $100; surplus, $894.20. Agriculture is the principal occupation. The manufacture of lumber and wood products are minor industries. Births, males, 8; females, 8; total 16; marriages, 5; deaths, males, 10; females, 9; total, 19; death rate per 1,000, 26.17. Town has 4 public schools; number of scholars, 145; average daily attendance, 111; amount raised for support of schools, $770; from other sources, $157.11; total school revenue, $927.11.

GILFORD.—Located in eastern part of Belknap county. Railroad station, Gilford, on Lake Shore Branch C. & M. railroad; banking town, Laconia. Population, 1880, 2,821; 1890, 3,585. Ratable polls, *200; assessed valuation of land and buildings, $292,432; stock in trade, $2,006; money on hand, at interest, or on deposit, $3,150; stock in banks or corporations in state, $3,800; valuation of assessed live

*Reduced owing to severing a part of the town and adding it to the city of Laconia.

stock (186 horses, 106 oxen, 443 cows, 382 other cattle, 817 sheep, 12 hogs), $33,730; total assessed valuation, $355,368. Taxes assessed, $7,295.49; rate of taxation, $2.05 on $100; surplus, $692.27. Agriculture is the principal occupation. Births, males, 29; females, 36; total, 65; marriages, 33; deaths, males, 33; females, 35; total, 68; death rate per 1,000, 18.96. Town has 20 public, 8 graded, and 1 high school; number of scholars, 541; average daily attendance, 390; amount raised for support of schools, $2,566; from other sources, $7,161.76; total school revenue, $9,727.76.

Gilmanton.— Located in southeast part of Belknap county; area, improved land, 23,840 acres. Railroad station, Barnstead, on Suncook Valley Branch C. & M. railroad; banking town, Laconia or Tilton. Population, 1880, 1,485; 1890, 1,211. Ratable polls, 294; assessed valuation of land and buildings, $408,448; mills and machinery, $8,020; stock in trade, $14,404; money on hand, at interest, or on deposit, $6,540; stock in banks or corporations in state, $8,550; valuation of assessed live stock (404 horses, 164 oxen, 574 cows, 531 other cattle, 1,079 sheep, 16 hogs), $57,432; total assessed valuation, $533,104. Taxes assessed, $12,474.63; rate of taxation, $2.34 on $100; net debt, $227.10. Agriculture is the principal occupation. The manufacture of lumber, doors, sash, and blinds are minor industries. Births, males 6; females, 10; total, 16; marriages, 9; deaths, males, 16; females, 18; total, 34; death rate per 1,000, 28.07. Town has 15 public schools; number of scholars, 198; average daily attendance, 181; amount raised for support of schools, $1,004.50; from other sources, $252.50; total school revenue, $1,267.

Gilsum.—Located in central part of Cheshire county; area, 9,456 acres. Railroad station, Keene, on Fitchburg railroad; banking town, Keene. Population, 1880, 663; 1890, 643. Ratable polls, 169; assessed valuation of land and buildings, $174,205; mills and machinery, $25,500; stock in trade, $21,005; money on hand, at interest, or on deposit, $14,359; stock in banks or corporations in state, $6,000; valuation of assessed live stock (179 horses, 38 oxen, 210 cows, 118 other cattle, 348 sheep, 5 hogs) $24,300; total assessed valuation, $288,122. Taxes assessed, $3,317.13; rate of taxation, $1.15 on $100; net debt, $1,072.92. Ag-

riculture is the principal occupation. The manufacture of lumber and woolen goods are minor industries. Births, males, 6; females, 8; total, 14; marriages, 6; deaths, males, 5; females, 3; total, 8; death rate per 1,000, 12.44. Town has 6 public and 2 graded schools; number of scholars, 117; average daily attendance, 87; amount raised for support of schools, $850; from other sources, $383.73; total school revenue, $1,233.73. One free library, 923 volumes; annual appropriation, $50.

GOFFSTOWN.—Located in northeast part of Hillsborough county; area, 29,170 acres. A station on C. & M. railroad; banking town, Manchester. Population, 1880, 1,699; 1890, 1,981. Ratable polls, 521; assessed valuation of land and buildings, $847,478; mills and machinery, $7,150; stock in trade, $45,188; money on hand, at interest, or on deposit, $106,628; stock in banks or corporations in state, $12,800; valuation of assessed live stock (588 horses, 93 oxen, 955 cows, 163 other cattle, 174 sheep, 17 hogs), $71,094; total assessed valuation, $1,145,126. Taxes assessed, $13,696.03; rate of taxation, $1.20 on $100; net debt, $47,345.21. Agriculture is the principal occupation. The manufacture of lumber and wood products, paper stock, pulp, sash and blinds, shoes, etc., are minor industries. Births, males, 20; females, 13; total, 33; marriages, 19; deaths, males, 22; females, 13; total, 35; death rate per 1,000, 17.66. Town has 16 public, 2 graded, and 1 high school; number of scholars, 398; average daily attendance, 328; amount raised for support of schools, $2,333.44; from other sources, $1,058.33; total school revenue, $3,391.77. One free library, 1,125 volumes; annual appropriation, $150.

GORHAM.—Located in southeast part of Coös county; area, 18,146 acres. A station on C. & M. and G. T. railroads; banking town, Berlin Falls, or Portland, Me. Population, 1880, 1,383; 1890, 1,710. Ratable polls, 478; assessed valuation of land and buildings, $342,373; mills and machinery, $7,500; stock in trade, $35,424; money on hand, at interest, or on deposit, $6,074; stock in banks or corporations in state, $12,500; valuation of assessed live stock (295 horses, 4 oxen, 154 cows, 6 other cattle, 105 sheep, 12 hogs), $23,585; total assessed valuation, $478,780. Taxes assessed, $9,066.04; rate of taxation, $1.89 on $100; net debt, $832.09.

Agriculture, and the keeping of summer boarders are quite extensive occupations. The manufacture of lumber is the most important industry. Births, males, 34; females, 19; total, 53; marriages, 28; deaths, males, 21; females, 11; total, 32; death rate per 1,000, 18.71. Town has 9 public, 2 graded, and 1 high school; number of scholars, 372; average daily attendance, 310; amount raised for support of schools, $2,500; from other sources, $1,949.19; total school revenue, $4,490.19. One free library, 2,000 volumes.

Goshen.—Located in eastern part of Sullivan county; area, 12,023 acres. Railroad station, Newport, on Concord Division B. & M. railroad; banking town, Newport. Population, 1880, 511; 1890, 384. Ratable polls, 87; assessed valuation of land and buildings, $106,414; mills and machinery, $1,300; stock in trade, $3,700; money on hand, at interest, or on deposit, $1,300; stock in banks or corporations in state, $4,100; valuation of assessed live stock (184 horses, 48 oxen, 269 cows, 134 other cattle, 390 sheep, 1 hog), $21,801; total assessed valuation, $148,585. Taxes assessed, $1,857.32; rate of taxation, $1.25 on $100; surplus, $984.76. Agriculture is the principal occupation. Births, males, 5; total, 5; marriage, 1; deaths, males, 3; females, 3; total, 6; death rate per 1,000, 20.83. Town has 10 public schools; number of scholars, 70; average daily attendance, 30; amount raised for support of schools, $473; from other sources, $170.90; total school revenue, $643.90. One free library, 521 volumes; annual appropriation, $25.

Grafton.—Located in southern part of Grafton county; area, 21,993 acres. A station on B. & M. railroad; banking town, Concord. Population, 1880, 934; 1890, 787. Ratable polls, 207; assessed valuation of land and buildings, $196,408; mills and machinery, $8,350; stock in trade, $11,700; money on hand, at interest, or on deposit, $12,875; stock in banks or corporations in state, $1,000; valuation of assessed live stock (237 horses, 138 oxen, 435 cows, 151 other cattle, 599 sheep, 14 hogs), $35,887; total assessed valuation, $287,020. Taxes assessed, $5,337.69; rate of taxation, $1.86 on $100; surplus, $1,583. Agriculture is the principal occupation. The manufacture of bobbins, shingles, and clapboards, and mica mining, are important industries. Births, males, 14; females, 6; total, 20; marriages, 5;

deaths, males, 13; females, 15; total, 28; death rate per 1,000, 35.57. Town has 10 public schools; number of scholars, 188; average daily attendance, 157; amount raised for support of schools, $795; from other sources, $412.93; total school revenue, $1,207.93.

GRANTHAM.—Located in northern part of Sullivan county; area, 24,000 acres. Railroad station, Newport, on Concord Division B. & M. railroad; banking town, Newport. Population, 1880, 540; 1890, 424. Ratable polls, 104; assessed valuation of land and buildings, $102,805; stock in trade, $6,735; money on hand, at interest, or on deposit, $1,150; stock in banks or corporations in state, $500; valuation of assessed live stock (142 horses, 54 oxen, 239 cows, 74 other cattle, 277 sheep, 8 hogs), $17,827; total assessed valuation, $139,417. Taxes assessed, $2,916.91; rate of taxation, $2.09 on $100; net debt, $4,152.46. Agriculture is the principal occupation. The manufacture of lumber and shingles are minor industries. Births, males, 7; females, 3; total, 10; marriages, 4; deaths, males, 10; females, 6; total, 16; death rate per 1,000, 37.73. Town has 4 public schools; number of scholars, 90; average daily attendance, 68; amount raised for support of schools, $476.30; from other sources, $224.30; total school revenue, $700.60. One subscription library.

GREENFIELD.—Located in western part of Hillsborough county. A station on B. & M. railroad; banking town, Francestown or Peterborough. Population, 1880, 649; 1890, 607. Ratable polls, 158; assessed valuation of land and buildings, $189,854; stock in trade, $18,745; money on hand, at interest, or on deposit, $9,860; stock in banks or corporations in state, $1,000; valuation of assessed live stock (161 horses, 42 oxen, 486 cows, 83 other cattle, 139 sheep, 15 hogs), $26,782; total assessed valuation, $262,486. Taxes assessed, $4,121.66; rate of taxation, $1.57 on $100; net debt, $1,291.70. Agriculture is the principal occupation. Births, males, 5; females, 9; total, 14; marriages, 9; deaths, males, 3; females, 6; total, 9; death rate per 1,000, 14.82. Town has 4 public, and 2 graded schools; number of scholars, 113; average daily attendance, 100; amount raised for support of schools, $744; from other sources, $382.44; total school revenue, $1,126.44.

GREENLAND.—Located in northeast part of Rockingham county; area, 6,330 acres. A station on C. & M. and B. & M. railroads; banking town, Portsmouth. Population, 1880, 695; 1890, 647. Ratable polls, 146; assessed valuation of land and buildings, $297,350; stock in trade, $500; money on hand, at interest, or on deposit, $6,950; stock in banks or corporations in state, $22,999; valuation of assessed live stock (197 horses, 32 oxen, 547 cows, 67 other cattle, 126 sheep), $27,210; total assessed valuation, $370,424. Taxes assessed, $4,510.65; rate of taxation, $1.22 on $100; net debt, $2,994.95. Agriculture is the principal occupation. Births, males, 6; females, 3; total, 9; marriages, 3; deaths, males, 4; females, 5; total, 9; death rate per 1,000, 13.91. Town has 4 public, 1 graded, and 1 high school; number of scholars, 109; average daily attendance, 87; amount raised for support of schools, $1,396; from other sources, $282.98; total school revenue, $1,678.90.

GREENVILLE.—Located in southern part of Hillsborough county. A railroad station on Peterborough & Shirley Branch of Fitchburg railroad; banking town, Nashua or Milford. Population, 1880, 1,072; 1890, 1,255. Ratable polls, 347; assessed valuation of land and buildings, $318,566; mills and machinery, $256,500; stock in trade, $56,350; money on hand, at interest, or on deposit, $19,400; valuation of assessed live stock (142 horses, 6 oxen, 185 cows, 16 other cattle, 20 sheep, 4 hogs), $15,648; total assessed valuation, $703,576. Taxes assessed, $8,020.76; rate of taxation, $1.14 on $100; net debt, $1,091.36. Agriculture is a minor occupation, most of the inhabitants being engaged in mechanical pursuits. The manufacture of denims and cheviots is one of the most important industries. Births, males, 26; females, 29; total, 55; marriages, 22; deaths, males, 18; females, 22; total, 40; death rate per 1,000, 31.87. Town has 5 public and 3 graded schools; number of scholars, 136; average daily attendance, 90; amount raised for support of schools, $1,200; from other sources, $395.39; total school revenue, $1,595.39. One free library; annual appropriation, $150.

GROTON.—Located in southern part of Grafton county; area, 16,531 acres. Railroad station, Bristol, on Bristol

Branch B. & M. railroad; banking town, Plymouth. Population, 1880, 566; 1890, 464. Ratable polls, 131; assessed valuation of land and buildings, $77,802; mills and machinery, $7,650; stock in trade, $4,420; valuation of assessed live stock (141 horses, 68 oxen, 179 cows, 91 other cattle, 383 sheep), $14,060; total assessed valuation, $117,062. Taxes assessed, $3,244.83; rate of taxation, $2.77 on $100; net debt, $1,188.47. Agriculture is the principal occupation. The manufacture of lumber, tools, machinery, and patterns are minor industries; mica mining is carried on to some extent. Births, males, 5; females, 6; total, 11; marriages, 4; deaths, males, 9; females, 12; total, 21; death rate per 1,000, 45.25. Town has 7 public schools; number of scholars, 99; average daily attendance, 75; amount raised for support of schools, $420.22; from other sources, $291.67; total school revenue, $711.89.

HAMPSTEAD.—Located in southwest part of Rockingham county; area, 8,000 acres. A station on B. & M. railroad; banking town, Nashua or Haverhill, Mass. Population, 1880, 959; 1890, 860. Ratable polls, 222; assessed valuation of land and buildings, $273,873; mills and machinery, $4,100; stock in trade, $14,825; money on hand, at interest, or on deposit, $10,400; stock in banks or corporations in state, $2,500; valuation of assessed live stock (243 horses, 4 oxen, 229 cows, 23 other cattle, 5 sheep, 13 hogs), $21,221; total assessed valuation, $347,686. Taxes assessed, $4,172.22; rate of taxation, $1.20 on $100; surplus, $1,009.76. Agriculture is one of the principal occupations. The manufacture of shoes is the most important industry. Births, males, 4; females, 2; total, 6; marriages, 7; deaths, males, 5; females, 7; total, 12; death rate per 1,000, 13.96. Town has 7 public and 1 high school; number of scholars, 170; average daily attendance, 96; amount raised for support of schools, $1,447.77; from other sources, $431.21; total school revenue, $1,878.98. One free library, 1,035 volumes; annual appropriation, $150.

HAMPTON.—Located in southeast part of Rockingham county; area, 8,130 acres. A station on B. & M. railroad; banking town, Exeter or Portsmouth. Population, 1880, 1,184; 1890, 1,330. Ratable polls, 332; assessed valuation of land and buildings, $526,685; mills and machinery, $650;

stock in trade, $8,450; money on hand, at interest, or on deposit, $14,850; stock in banks or corporations in state, $1,900; valuation of assessed live stock (242 horses, 19 oxen, 455 cows, 34 other cattle, 101 sheep, 4 hogs), $25,145; total assessed valuation, $647,915. Taxes assessed, $8,098.87; rate of taxation, $1.25 on $100; net debt, $6,511.82. Agriculture and the entertainment of summer visitors are the principal occupations. Manufacturing is of minor importance. Births, males, 8; females, 5; total, 13; marriages, 12; deaths, males, 5; females, 6; total, 11; death rate per 1,000, 8.27. Town has 5 public, 5 graded, and 1 high school; number of scholars, 143; average daily attendance, 129; amount raised for support of schools, $994; from other sources, $1,177.84; total school revenue, $2,171.84. One free library, 1,760 volumes; annual appropriation, $100.

HAMPTON FALLS.—Located in southeast part of Rockingham county; area, 7,400 acres. A station on Eastern Division B. & M. railroad; banking town, Exeter or Newburyport, Mass. Population, 1880, 678; 1890, 622. Ratable polls, 155; assessed valuation of land and buildings, $231,265; mills and machinery, $2,370; stock in trade, $430; money on hand, at interest, or on deposit, $4,122; stock in banks or corporations in state, $1,000; valuation of assessed live stock (180 horses, 20 oxen, 381 cows, 55 other cattle, 135 sheep, 35 hogs), $26,398; total assessed valuation, $289,346. Taxes assessed, $3,616.41; rate of taxation, $1.25 on $100; net debt, $533.50. Agriculture is the principal occupation. The manufacture of lumber, hosiery, essences and extracts, are minor industries. Births, male, 1; females, 2; total, 3; marriages, 10; deaths, males, 6; females, 5; total, 11; death rate per 1,000, 17.68. Town has 4 public schools; number of scholars, 83; average daily attendance, 65; amount raised for support of schools, $1,000; from other sources, $150; total school revenue, $1,150. One free library, 1,000 volumes.

HANCOCK.—Located in western part of Hillsborough county; area, 19,372 acres. A station on B. & M. railroad; banking town, Hillsborough Bridge or Peterborough. Population, 1880, 689; 1890, 637. Ratable polls, 188; assessed valuation of land and buildings, $243,565; mills

and machinery, $2,100; stock in trade, $10,070; money on hand, at interest, or on deposit, $2,825; stock in banks or corporations in state, $12,100; valuation of assessed live stock (223 horses, 64 oxen, 481 cows, 249 other cattle, 153 sheep, 5 hogs), $32,649; total assessed valuation, $324,564. Taxes assessed, $4,608.87; rate of taxation, $1.42 on $100; net debt, $1,536.04. Agriculture is the principal occupation. The manufacture of lumber, leather, and pails are minor industries. Births, males, 5; females, 5; total, 10; marriages, 6; deaths, males, 6; females, 4; total, 10; death rate per 1,000, 15.69. Town has 10 public, 2 graded, and 1 high school; number of scholars, 136; average daily attendance, 130; amount raised for support of schools, $2,022; from other sources, $341.01; total school revenue, $2,363.01. One free library, 2,321 volumes: annual appropriation, $570.

HANOVER.—Located in southwest part of Grafton county; area, 27,745 acres. Railroad station, Norwich, Vt., on Passumpsic Division B. & M. railroad; a banking town. Population, 1880, 2,147; 1890, 1,817. Ratable polls, 451; assessed valuation of land and buildings, $730,784; mills and machinery, $38,200; stock in trade, $38,660; money on hand, at interest, or on deposit, $69,778; stock in banks or corporations in state, $36,440; valuation of assessed live stock (506 horses, 75 oxen, 919 cows, 396 other cattle, 1,488 sheep, 24 hogs), $80,810; total assessed valuation, $1,042,402. Taxes assessed, $14,369.04; rate of taxation, $1.38 on $100; net debt, $9,029. Agriculture is the principal occupation. The manufacture of lumber, shingles and ladders, are minor industries. Hanover is the seat of Dartmouth college. Births, males, 7; females, 8; total, 15; marriages, 19; deaths, males, 15; females, 12; total, 27; death rate per 1,000, 14.85. Town has 14 public, 4 graded, and 1 high school; number of scholars, 313; average daily attendance, 227; amount raised for support of schools, $2,040; from other sources, $2,728.35; total school revenue, $4,768.35. One free library, 1,300 volumes.

HARRISVILLE.—Located in eastern part of Cheshire county. A station on Southern Division B. & M. railroad; banking town, Keene or Peterborough. Population, 1880,

870; 1890, 748. Ratable polls, 186; assessed valuation of land and buildings, $189,290; mills and machinery, $48,100; stock in trade, $34,868; money on hand, at interest, or on deposit, $5,689; stock in banks or corporations in state, $1,100; valuation of assessed live stock (161 horses, 36 oxen, 252 cows, 62 other cattle, 316 sheep, 6 hogs), $21,819; total assessed valuation, $320,941. Taxes assessed, $5,969.50; rate of taxation, $1.86 on $100; net debt, $12,706.14. Agriculture is a minor occupation. The manufacture of woolen goods and lumber are the principal industries. Births, males, 8; females, 9; total, 17; marriages, 4; deaths, males, 2; females, 8; total, 10; death rate per 1,000, 13.38. Town has 3 public and 1 graded school; number of scholars, 142; average daily attendance, 110; amount raised for support of schools, $850; from other sources, $274.14; total school revenue, $1,124.14. One free library, 1,350 volumes; annual appropriation, $50.

Hart's Location.—Located in northwest part of Carroll county. Railroad station, Bemis, on Maine Central railroad; banking town, Portland, Me. Population, 1880, 70; 1890, 187. Ratable polls, 27; assessed valuation of land and buildings, $20,700; stock in trade, $1,000; money on hand, at interest, or on deposit, $5,000; valuation of assessed live stock (15 horses, 2 oxen, 6 cows), $1,420; total assessed valuation, $32,820. Taxes assessed, $425; rate of taxation, $1.29 on $100; surplus, $150. The manufacture of lumber is the principal industry. No births or marriages; deaths, males, 3; death rate per 1,000, 16.04.

Haverhill.—Located in western part of Grafton county: area, 34,340 acres. A station on C. & M. railroad; banking town, Woodsville, or Wells River, Vt. Population, 1880, 2,455; 1890, 2,545. Ratable polls, 714; assessed valuation of land and buildings, $838,240; mills and machinery, $30,900; stock in trade, $50,400; money on hand, at interest, or on deposit, $149,450; stock in banks or corporations in state, $7,500; valuation of assessed live stock (699 horses, 52 oxen, 1,734 cows, 571 other cattle, 838 sheep, 131 hogs), $89,782; total assessed valuation, $1,240,618. Taxes assessed, $14,425.57; rate of taxation, $1.16 on $100; surplus, $5,831.75. Agriculture is the principal occupation. The manufacture of lumber and granite, scythe stones, wrapping

paper, and harness, are important industries. Births, males, 7; females, 23; total, 30; marriages, 35; deaths, males, 31; females, 26; total, 57; death rate per 1,000, 22.39. Town has 11 public and 1 high school; number of scholars, 618; average daily attendance, 114; amount raised for support of schools, $8,218.82; from other sources, $1,193.60; total school revenue, $9,412.42. One subscription library, 876 volumes.

HEBRON.—Located in southeast part of Grafton county; area, 13,305 acres. Railroad station, Bristol, on Bristol Branch B. & M. railroad; banking town, Plymouth. Population, 1880, 329; 1890, 245. Ratable polls, 69; assessed valuation of land and buildings, $67,092; stock in trade, $2,130; stock in banks or corporations in state, $7,500; valuation of assessed live stock (94 horses, 49 oxen, 155 cows, 74 other cattle, 481 sheep, 5 hogs), $12,074; total assessed valuation, $88,696. Taxes assessed, $1,623.22; rate of taxation, $1.83 on $100; net debt, $0.58. Agriculture is the principal occupation. Births, males, 2; females, 2; total, 4; marriages, 2; deaths, males, 3; females, 3; total, 6; death rate per 1,000, 24.48. Town has 2 public schools; number of scholars, 50; average daily attendance, 34; amount raised for support of schools, $154; from other sources, $167.28; total school revenue, $327.28. One subscription library, 360 volumes.

HENNIKER.—Located in southern part of Merrimack county; area, 26,500 acres. Railroad stations, Henniker, on B. & M. and C. & M. railroads, and West Henniker on B. & M. railroad; banking town, Concord or Hillsborough. Population, 1880, 1,326; 1890, 1,385. Ratable polls, 353; assessed valuation of land and buildings, $482,822; mills and machinery, $37,000; stock in trade, $30,712; money on hand, at interest, or on deposit, $16,935; stock in banks or corporations in state, $3,500; valuation of assessed live stock (363 horses, 130 oxen, 842 cows, 391 other cattle, 599 sheep, 25 hogs), $59,677; total assessed valuation, $673,636. Taxes assessed, $10,104.59; rate of taxation, $1.50 on $100; net debt, $4,386.55. Agriculture is the principal occupation. The manufacture of paper, boots, shoes, and slippers, wooden goods, harness, baskets, and boxes, are important industries. Births, males, 6; females, 11; total, 17;

marriages, 17; deaths, males, 15; females, 12; total, 27; death rate per 1,000, 19.49. Town has 12 public, 2 graded, and 1 high school; number of scholars, 217; average daily attendance, 155; amount raised for support of schools, $2,738.81; from other sources, $929.18; total school revenue, $3,667.99. One free library, 1,221 volumes; annual appropriation, $200.

HILL.—Located in northern part of Merrimack county; area, 20,000 acres. A station on Bristol Branch B. & M railroad; banking town, Franklin. Population, 1880, 667; 1890, 548. Ratable polls, 147; assessed valuation of land and buildings, $131,150; mills and machinery, $4,950; stock in trade, $5,300; money on hand, at interest, or on deposit, $3,050; stock in banks or corporations in state, $1,000; valuation of assessed live stock (186 horses, 38 oxen, 289 cows, 81 other cattle, 662 sheep, 10 hogs), $20,253; total assessed valuation, $180,483. Taxes assessed, $2,256.04; rate of taxation, $1.25 on $100; surplus, $522. Agriculture is the principal occupation. The manufacture of carriages, sleighs, hardware novelties, and latch needles, are minor industries. Births, males, 3; females, 4; total, 7; marriages, 5; deaths, males, 9; females, 5; total, 14; death rate per 1,000, 25.54. Town has 4 public schools; number of scholars, 87; average daily attendance, 67; amount raised for support of schools, $826.04; from other sources, $119.04; total school revenue, $945.08.

HILLSBOROUGH.—Located in northwest part of Hillsborough county; area, 27,320 acres. Railroad station, Hillsborough Bridge, on B. & M. railroad; a banking town. Population, 1880, 1,646; 1890, 2,120. Ratable polls, 637; assessed valuation of land and buildings, $760,080; mills and machinery, $63,150; stock in trade, $78,300; money on hand, at interest, or on deposit, $9,300; stock in banks or corporations in state, $8,350; valuation of assessed live stock (518 horses, 114 oxen, 940 cows, 274 other cattle, 377 sheep, 25 hogs), $70,324; total assessed valuation, $1,067,170. Taxes assessed, $20,920.16; rate of taxation, $1.96 on $100; net debt, $917.22. Agriculture is the principal occupation. The manufacture of lumber, woolen goods, hosiery, harness, etc., are minor industries. Births, males, 25; females, 22; total, 47; marriages, 30; deaths, males, 23;

females, 22; total, 45; death rate per 1,000, 21.22. Town has 7 public, 5 graded, and 1 high school; number of scholars, 380; average daily attendance, 299; amount raised for support of schools, $2,585.61; from other sources, $2,417.35; total school revenue, $5,002.96. One free library, 2,974 volumes; annual appropriation, $300.

HINSDALE.—Located in southwest part of Cheshire county; area, 14,000 acres. A station on B. & M. railroad; banking town, Winchester. Population, 1880, 1,868; 1890, 2,258. Ratable polls, 593; assessed valuation of land and buildings, $671,360; mills and machinery, $103,725; stock in trade, $116,050; money on hand, at interest, or on deposit, $16,698; stock in banks or corporations in state, $2,000; valuation of assessed live stock (381 horses, 37 oxen, 516 cows, 102 other cattle, 36 sheep, 31 hogs), $41,519; total assessed valuation, $1,011,357. Taxes assessed, $22,250.15; rate of taxation, $2.20 on $100; net debt, $5,614.70. Agriculture is one of the principal occupations. The manufacture of woolen goods, chisels, drawing knives, harness, water tubing, wooden ware, soap, turbine water wheels, etc., are important industries. Births, males, 23; females, 26; total 49; marriages, 24; deaths, males, 17; females, 22; total, 39; death rate per 1,000, 17.27. Town has 7 public and 1 graded school; number of scholars, 499; average daily attendance, 309; amount raised for support of schools, $3,950; from other sources, $2,625.45; total school revenue, $6,575.45. One free library, 3,000 volumes; annual appropriation, $300.

HOLDERNESS.—Located in southeast part of Grafton county; area, improved land, 10,454 acres. Railroad station, Ashland, on C. & M. railroad; banking town, Plymouth. Population, 1880, 703; 1890, 595; ratable polls, 159; assessed valuation of land and buildings, $181,708; mills and machinery, $1,500; stock in trade, $3,356; money on hand, at interest, or on deposit, $1,260; valuation of assessed live stock (210 horses, 102 oxen, 346 cows, 169 other cattle, 403 sheep, 9 hogs), $29,216; total assessed valuation, $234,056. Taxes assessed, $4,751.52; rate of taxation, $2.03 on $100; surplus, $1,751.09. Agriculture and care of summer boarders are the principal occupations. The

manufacture of lumber and wood fibre are minor industries. Births, males, 4; females, 4; total, 8; marriages, 2; deaths, males, 11; females, 6; total, 17; death rate per 1,000, 28.57. Town has 9 public schools; number of scholars, 112; average daily attendance, 97; amount raised for support of schools, $1,050; from other sources, $396.61; total school revenue, $1,446.61. One free library, 800 volumes.

HOLLIS.—Located in southern part of Hillsborough county; area, 19,620 acres. A station on B. & M. railroad; banking town, Nashua. Population, 1880, 1,077; 1890, 1,000. Ratable polls, 248; assessed valuation of land and buildings, $488,115; mills and machinery, $8,800; stock in trade, $7,895; money on hand, at interest, or on deposit, $28,660; stock in banks or corporations in state, $23,700; valuation of assessed live stock (223 horses, 64 oxen, 481 cows, 249 other cattle, 153 sheep, 2 hogs), $32,699; total assessed valuation, $632,840. Taxes assessed, $7,911.15; rate of taxation, $1.25 on $100; net debt, $6,848.16. Agriculture is the principal occupation. The manufacture of lumber, barrels, and mittens are minor industries. Births, males, 3; females, 2; total, 5; marriages, 4; deaths, males, 12; females, 8; total, 20; death rate per 1,000, 20. Town has 6 public, 1 high, and 1 graded school; number of scholars, 188; average daily attendance, 172; amount raised for support of schools, $2,045.81; from other sources, $830.33; total school revenue, $2,986.14. One free library, 3,580 volumes; annual appropriation, $250.

HOOKSETT.—Located in southeast part of Merrimack county. A station on C. & M. railroad; banking town, Concord or Manchester. Population, 1880, 1,766; 1890, 1,893. Ratable polls, 366; assessed valuation of land and buildings, $458,742; mills and machinery, $110,500; stock in trade, $23,538; money on hand, at interest, or on deposit, $4,970; stock in banks or corporations in state, $11,000; valuation of assessed live stock (298 horses, 30 oxen, 383 cows, 69 other cattle, 57 sheep, 9 hogs), $35,910; total assessed valuation, $682,556. Taxes assessed, $8,942.08; rate of taxation, $1.31 on $100; surplus, $3,927.65. Agriculture is the principal occupation. The manufacture of brick, cotton cloth, harnesses, etc., are important industries. Births, males, 12; females, 22; total, 34; marriages, 12; deaths,

males, 14; females, 20; total, 34; death rate per 1,000, 17.96. Town has 7 public and 2 graded schools; number of scholars, 202; average daily attendance, 141; amount raised for support of schools, $2,031.50; from other sources, $419.40; total school revenue, $2,505.90.

HOPKINTON.—Located in southern part of Merrimack county; area, 26,967 acres. Railroad station, Contoocook, on Concord division B. & M. railroad, or Concord on C. &. M. railroad; banking town, Concord. Population, 1880, 1,836; 1890, 1,817. Ratable polls, 420; assessed valuation of land and buildings, $643,544; mills and machinery, $25,000; stock in trade, $26,744; money on hand, at interest, or on deposit, $42,280; stock in banks or corporations in state, $13,630; valuation of assessed live stock (514 horses, 115 oxen, 1,172 cows, 266 other cattle, 349 sheep, 43 hogs), $71,645; total assessed valuation, $872,213. Taxes assessed, $14,163; rate of taxation, $1.62 on $100; surplus, $3,024.09. Agriculture is the principal occupation. The manufacture of leather, axe handles, silk, hubs, tinware, paper box machines, and lumber are important industries. Births, males, 14; females, 12; total, 26; marriages, 14; deaths, males, 25; females, 25; total, 50; death rate per 1,000, 27.51. Town has 14 public schools; number of scholars, 285; average daily attendance, 176; amount raised for support of schools, $2,147; from other sources, $1,224.65; total school revenue, $3,371.65. Two subscription libraries, 2,531 volumes.

HUDSON.—Located in southeast part of Hillsborough county; area, 17,379 acres. A station on the B. & M. railroad; banking town, Nashua. Population, 1880, 1,045; 1890, 1,092; ratable polls, 277; assessed valuation of land and buildings, $528,774; mills and machinery, $500; stock in trade, $8,304; money on hand, at interest, or on deposit, $18,910; stock in banks or corporations in state, $8,600; valuation of assessed live stock (518 horses, 114 oxen, 940 cows, 274 other cattle, 377 sheep), $69,952; total assessed valuation, $640,798. Taxes assessed, $9,355.65; rate of taxation, $1.46 on $100; surplus, $2,660.67. Agriculture is the principal occupation. The manufacture of carriages, boxes, and suspenders are minor industries. Births, males, 8; females, 9; total, 17; marriages, 6; deaths, males, 12;

females, 11; total, 23; death rate per 1,000, 21.06. Town has 8 public schools: number of scholars, 209; average daily attendance, 143; amount raised for support of schools, $1,276.10; from other sources, $1,230.22; total school revenue, $2,506.32. One free library, 1,900 volumes; annual appropriation, $100.

JACKSON.—Located in northern part of Carroll county; area, 31,968 acres. Railroad station, Glen Station, on Maine Central railroad; banking town, Rochester. Population, 1880, 464; 1890, 579: ratable polls, 135; assessed valuation of land and buildings, $188,746; stock in trade, $4,576; money on hand, at interest, or on deposit, $6,750; valuation of assessed live stock (226 horses, 60 oxen, 285 cows, 59 other cattle, 512 sheep, 14 hogs), $24,620; total assessed valuation, $242,862. Taxes assessed, $3,648.14; rate of taxation, $1.50 on $100; net debt, $500. Agriculture and the entertainment of summer visitors are the principal occupations. The manufacture of lumber is an important industry. Births, males, 6; females, 8; total, 14; marriages, 5; deaths, males, 4; females, 4; total, 8; death rate per 1,000, 13.81. Town has 6 public schools: number of scholars, 118; average daily attendance, 101; amount raised for support of schools, $329; from other sources, $521.11; total school revenue, $850.11. One free library, 662 volumes; annual appropriation, $30.

JAFFREY.—Located in southeast part of Cheshire county; area, 28,600 acres. Railroad station, East Jaffrey, on Fitchburg railroad; a banking town. Population, 1880, 1,267; 1890, 1,469. Ratable polls, 328: assessed valuation of land and buildings, $504,750; mills and machinery, $39,800; stock in trade, $55,640; money on hand, at interest, or on deposit, $61,850; stock in banks or corporations in state, $65,950; valuation of assessed live stock (326 horses, 65 oxen, 531 cows, 134 other cattle, 162 sheep, 33 hogs), $44,178; total assessed valuation, $827,158. Taxes assessed, $8,685.57; rate of taxation, $1.05 on $100; net debt, $7,750.50. Agriculture is the principal occupation. The manufacture of shoes, shoe knives, denims, and lumber, are important industries. Births, males, 14; females, 18; total, 32; marriages, 13; deaths, males, 9;

females, 17; total, 26; death rate per 1,000, 17.69. Town has 10 public and 1 high school; number of scholars, 258; average daily attendance, 176; amount raised for support of schools, $2,824; from other sources, $562.16; total school revenue, $3,386.16. One free library, 1,424 volumes; annual appropriation, $400.

JEFFERSON.—Located in southwest part of Coös county; area, 26,676 acres. Railroad stations, Jefferson Meadows, Jefferson Highlands, on C. & M. railroad, and Riverton, on Maine Central railroad; banking town, Lancaster. Population, 1880, 951; 1890, 1,062. Ratable polls, 329; assessed valuation of land and buildings, $214,854; mills and machinery, $830; stock in trade, $8,970; money on hand, at interest, or on deposit, $1,250; valuation of assessed live stock (622 horses, 70 oxen, 601 cows, 196 other cattle, 580 sheep, 5 hogs), $44,288; total assessed valuation, $305,212. Taxes assessed, $6,714.66; rate of taxation, $2.20 on $100; net debt, $1,251.07. Agriculture and the entertainment of summer visitors are the principal occupations. The manufacture of lumber and shingles are minor industries. Births, males, 14; females, 12; total, 26; marriages, 8; deaths, males, 10; females, 10; total, 20; death rate per 1,000, 18.83. Town has 9 public, 1 graded, and 1 high school; number of scholars, 210; average daily attendance, 144; amount raised for support of schools, $1,800; from other sources, $572.44; total school revenue, $2,572.44. One free library, 400 volumes; annual appropriation, $25.

KEENE.—Located in central part of Cheshire county; area, 23,040 acres. A station on Fitchburg and B. & M. railroads; a banking town. Population, 1880, 6,784; 1890, 7,446. Ratable polls, 2,051; assessed valuation of land and buildings, $4,168,745; mills and machinery, $171,200; stock in trade, $469,918; money on hand, at interest, or on deposit, $460,592; stock in banks or corporations in state, $465,300; valuation of assessed live stock (1,088 horses, 18 oxen, 954 cows, 154 other cattle, 806 sheep, 50 hogs), $124,722; total assessed valuation, $6,464,708. Taxes assessed, $89,401; rate of taxation, $1.37 on $100; net debt, $278,353. Manufacturing and mercantile pursuits are extensively carried on. The manufacture of flannels, pails,

hoops, window screens, extracts, basket chairs, wooden ware and packing boxes, chairs, carriages, machinery and water wheels, tin and wooden cans, boots and shoes, brick, and furniture, are the most important industries. Births, males, 78; females, 72; total, 150; marriages, 82; deaths, males, 80; females, 58; total, 138; death rate per 1,000, 18.53. City has 31 public, 21 graded, and 1 high school; number of scholars, 1,207; average daily attendance, 958; amount raised for support of schools, $12,787.60; from other sources, $10,546.43; total school revenue, $23,333.07. One free library, 7,915 volumes; annual appropriation, $1,100.

Kensington.—Located in southeast part of Rockingham county; area, 7,045 acres. Railroad stations, Hampton Falls and Exeter, on B. & M. railroad; banking town, Exeter or Amesbury, Mass. Population, 1880, 614; 1890, 547. Ratable polls, 137; assessed valuation of land and buildings, $211,622; stock in trade, $4,745; money on hand, at interest, or on deposit, $3,200; stock in banks or corporations in state, $2,600; valuation of assessed live stock (183 horses, 46 oxen, 479 cows, 79 other cattle, 182 sheep), $23,654; total assessed valuation, $260,106. Taxes assessed, $3,524.50; rate of taxation, $1.35 on $100; surplus, $219.20. Agriculture is the principal occupation. The manufacture of lumber is a minor industry. Births, males, 6; female, 1; total, 7; marriages, 5; deaths, males, 5; females, 5; total, 10; death rate per 1,000, 18.28. Town has 3 public schools; number of scholars, 87; average daily attendance, 65; amount raised for support of schools, $677.63; from other sources, $115.20; total school revenue, $792.83. One free library; annual appropriation, $25.

Kingston.—Located in southern part of Rockingham county; area, 12,188 acres. Railroad station, East Kingston, on B. & M. railroad; banking towns, Exeter and Haverhill, Mass. Population, 1880, 1,080; 1890, 1,120. Ratable polls, 287; assessed valuation of land and buildings, $277,948; mills and machinery, $2,200; stock in trade, $13,281; money on hand, at interest, or on deposit, $11,730; stock in banks or corporations in state, $2,300; valuation of assessed live stock (261 horses, 20 oxen, 249

cows, 22 other cattle, 40 sheep), $19,723; total assessed valuation, $356,948. Taxes assessed, $6,234.48; rate of taxation, $1.75 on $100; net debt, $5,319.05. Agriculture is the principal occupation. The manufacture of carriages, boots and shoes, are minor industries. Births, males, 6; female, 1; total, 7; marriages, 3; deaths, males, 6; females, 4; total, 10; death rate per 1,000, 8.92. Town has 6 public and 1 graded school; number of scholars, 189; average daily attendance, 119; amount raised for support of schools, $574; from other sources, $1,107.53; total school revenue, $1,681.53. One free library, 525 volumes.

LACONIA.—Located in central part of Belknap county. Railroad stations, Laconia, Lakeport, and The Weirs, on C. & M. railroad; a banking town. Population, 1880, 3,790; 1890, 6,143. Ratable polls, 2,634; assessed valuation of land and buildings, $3,149,774; mills and machinery, $364,286; stock in trade, $287,310; money on hand, at interest, or on deposit, $69,317; stock in banks or corporations in state, $161,100; valuation of assessed live stock (747 horses, 66 oxen, 481 cows, 101 other cattle, 77 sheep, 65 hogs), $78,616; total assessed valuation, $4,419,312. Taxes assessed, $74,592.75; rate of taxation, $1.69 on $100; net debt, $74,592.75. Manufacturing and mercantile pursuits are extensively engaged in. The manufacture of railroad cars, yarn and hosiery, knitting machines and needles, emery wheels, paper boxes, cigars, sash and blinds, boots and shoes, packing boxes, lumber, carriages and wagons, are important industries. Births, males, 91; females, 79; total, 170; marriages, 89; deaths, males, 65; females, 64; total, 129; death rate per 1,000, 20.99. City has 20 public, 17 graded, and 1 high school; number of scholars, 1,037; average daily attendance, 711; amount raised for support of schools, $7,529; from other sources, $4,593.54; total school revenue, $12,122.54. One free library, 5,638 volumes; annual appropriation, $600.

LANCASTER.—Located in southwest part of Coös county; area, 23,480 acres. Railroad stations, Lancaster and South Lancaster, on C. & M. railroad, and Lancaster and Lancaster Junction, on Maine Central railroad; a banking town. Population, 1880, 2,721; 1890, 3,373. Ratable polls, 1,072; assessed valuation of land and build-

ings, $951,010; mills and machinery, $11,450; stock in trade, $94,920; money on hand, at interest, or on deposit, $17,020; stock in banks or corporations in state, $60,400; valuation of assessed live stock (868 horses, 60 oxen, 1,212 cows, 397 other cattle, 1,058 sheep, 94 hogs), $87,290; total assessed valuation, $1,334,964. Taxes assessed, $27,238.20; rate of taxation, $2.04 on $100; net debt, $7,583.91. Agriculture is an important occupation. The manufacture of paper, fancy leather goods, medicines, doors, etc., sash and blinds, belt hooks, and furniture, is also quite extensively carried on. Births, males, 40; females, 31; total, 71; marriages, 35; deaths, males, 24; females, 24; total, 48; death rate per 1,000, 14.23. Town has 16 public, 6 graded, and 1 high school; number of scholars, 646; average daily attendance, 462; amount raised for support of schools, $2,184; from other sources, $4,785.97; total school revenue, $6,969.97. One free library, 4,500 volumes.

LANDAFF.—Located in northwest part of Grafton county. Railroad station, Lisbon, on C. & M. railroad; banking town, Lisbon, Woodsville, or Wells River, Vt. Population, 1880, 506; 1890, 499. Ratable polls, 131; assessed valuation of land and buildings, $156,028; mills and machinery, $250; stock in trade, $5,338; money on hand, at interest, or on deposit, $18,100; stock in banks or corporations in state, $3,000; valuation of assessed live stock (242 horses, 84 oxen, 287 cows, 195 other cattle, 858 sheep, 14 hogs), $28,372; total assessed valuation, $224,188. Taxes assessed, $2,611 90; rate of taxation, $1.17 on $100; surplus, $673.71. Agriculture is the principal occupation. The manufacture of lumber, bobbins, calipers and rules, spruce oil, etc., are minor industries. Births, males, 3; females, 5; total, 8; marriages, 3; deaths, males, 4; females, 4; total, 8; death rate per 1,000, 16.03. Town has 7 public schools; number of scholars, 100; average daily attendance, 69; amount raised for support of schools, $599; from other sources, $380.25; total school revenue, $979.25.

LANGDON.—Located in southwest part of Sullivan county; area, 9,891 acres. Railroad station, Bellows Falls, Vt., on Fitchburg railroad; banking town, Charlestown or Bellows Falls, Vt. Population, 1880, 364; 1890, 305. Ratable

polls, 95; assessed valuation of land and buildings, $164,344; mills and machinery, $1,000; stock in trade, $150; money on hand, at interest, or on deposit, $19,028; stock in banks or corporations in state, $6,200; valuation of assessed live stock (171 horses, 52 oxen, 322 cows, 109 other cattle, 1,023 sheep, 16 hogs), $28,472; total assessed valuation, $223,594. Taxes assessed, $2,496.61; rate of taxation, $1.07 on $100; surplus, $707.89. Agriculture is the principal occupation. The manufacture of lumber, pail staves, and cider are minor industries. Births, males, 10; female, 1; total, 11; marriage, 1; deaths, males, 3; females, 3; total, 6; death rate per 1,000, 19.67. Town has 3 public schools; number of scholars, 55; average daily attendance, 37; amount raised for support of schools, $550; from other sources, $179.03; total school revenue, $729.03. One free library; annual appropriation, $50.

LEBANON.—Located in southwest part of Grafton county; area, 23,000 acres. Railroad stations, Lebanon, East Lebanon, West Lebanon, on B. & M. railroad; a banking town. Population, 1880, 3,354; 1890, 3,763. Ratable polls, 1,099; assessed valuation of land and buildings, $1,609,818; mills and machinery, $65,000; stock in trade, $187,000; money on hand, at interest, or on deposit, $172,657; stock in banks or corporations in state, $67,800; valuation of assessed live stock (688 horses, 65 oxen, 1,089 cows, 267 other cattle, 2,830 sheep, 30 hogs), $101,726; total assessed valuation, $2,267,524. Taxes assessed, $39,611.16; rate of taxation, $1.74 on $100; net debt, $80,641.70. Agriculture is an important occupation, although manufacturing and mechanical pursuits take the lead in value of products. The manufacture of woolens, cardigan jackets, overalls, paper boxes, wrapping paper, watch keys, rakes, scythes, cotton and woolen goods, sash and doors, are the principal industries. Births, males, 40; females, 33; total, 73; marriages, 52; deaths, males, 42; females, 49; total, 91; death rate per 1,000, 24.18. Town has 23 public, 12 graded, and 2 high schools; number of scholars, 727; average daily attendance, 467; amount raised for support of schools, $6,100; from other sources, $1,689.56; total school revenue, $7,789.56. One free library, 3,000 volumes; annual appropriation, $400.

LEE.—Located in southwest part of Strafford county; area, 11,625 acres. Railroad stations, Lee and South Lee, on B. & M. railroad; banking town, Newmarket or Rochester. Population, 1880, 715; 1890, 606. Ratable polls, 152; assessed valuation of land and buildings, $204,330; mills and machinery, $5,440; stock in trade, $18,150; money on hand, at interest, or on deposit, $14,090; stock in banks or corporations in state, $7,100; valuation of assessed live stock (238 horses, 56 oxen, 404 cows, 119 other cattle, 324 sheep), $32,330; total assessed valuation, $302,700. Taxes assessed, $4,036; rate of taxation, $1.33 on $100; surplus, $1,410.59. Agriculture is the principal occupation. The manufacture of lumber and shoes are minor industries. Births, males, 4; marriages, 5; deaths, males, 7; females, 5; total, 12; death rate per 1,000, 19.80. Town has 3 public schools; number of scholars, 104; average daily attendance, 70; amount raised for support of schools, $654.50; from other sources, $250; total school revenue, $904.50. One free library, 348 volumes; annual appropriation, $25.

LEMPSTER.—Located in southern part of Sullivan county; area, 21,410 acres. Railroad station, Claremont or Newport on Concord Division B. & M. railroad; banking town, Newport. Population, 1880, 602; 1890, 519. Ratable polls, 128; assessed valuation of land and buildings, $129,792; mills and machinery, $3,670; stock in trade, $1,825; money on hand, at interest, or on deposit, $3,358; valuation of assessed live stock (237 horses, 71 oxen, 332 cows, 152 other cattle, 384 sheep, 2 hogs), $26,698; total assessed valuation, $180,013. Taxes assessed, $3,338.47; rate of taxation, $1.85 on $100; surplus, $42.92. Agriculture is the principal occupation. The manufacture of lumber and shingles are minor industries. Births, males, 8; female, 1; total, 9; marriages, 3; deaths, males, 6; females, 3; total, 9; death rate per 1,000, 17.34. Town has 5 public schools; number of scholars, 99; average daily attendance, 73; amount raised for support of schools, $325; from other sources, $445.39; total school revenue, $770.39. One free library, 670 volumes; annual appropriation, $40.

LINCOLN.—Located in northern part of Grafton connty; area, 32,456 acres. Railroad station, North Woodstock, on C. & M. railroad; banking town, Plymouth. Population,

1880, 65; 1890, 110. Ratable polls, 74; assessed valuation of land and buildings, $70,905; stock in trade, $35,450; valuation of assessed live stock (161 horses, 18 oxen, 28 cows, 2 other cattle, 24 hogs), $10,758; total assessed valuation, $124,513. Taxes assessed, $1,170.42; rate of taxation, $0.94 on $100; surplus, $111.84. Agriculture and care of summer boarders are the principal occupations of the few people of the town. The manufacture of lumber is the only mechanical industry. Births, male, 1; females, 5; total, 6; marriages, 3; deaths, males, 2; death rate per 1,000, 18.18. Town has 1 public school; number of scholars, 26; average daily attendance, 22; amount raised for support of schools, $80.50; from other sources, $76.75; total school revenue, $157.25.

LISBON.—Located in northwest part of Grafton county; area, 29,130 acres. Railroad stations, Lisbon and Sugar Hill, on C. & M. railroad; banking town, Lisbon or Wells River, Vt. Population, 1880, 1,807; 1890, 2,060. Ratable polls, 567; assessed valuation of land and buildings, $724,489; mills and machinery, $17,500; stock in trade, $43,280; money on hand, at interest, or on deposit, $58,006; stock in banks or corporations in state, $500; valuation of assessed live stock (815 horses, 38 oxen, 983 cows, 357 other cattle, 1,890 sheep, 70 hogs), $83,820; total assessed valuation, $991,889. Taxes assessed, $21,517.81; rate of taxation, $2.17 on $100; net debt, $34,598.33. Agriculture is the principal occupation. The manufacture of bobbins, shoe pegs, piano sounding boards, chair stock, boxes, etc., are the most important industries. Births, males, 16; females, 19; total, 35; marriages, 20; deaths, males, 20; females, 19; total, 39; death rate per 1,000, 18.93. Town has 15 public, 5 graded, and 1 high school; number of scholars, 440; average daily attendance, 312; amount raised for support of schools, $3,000; from other sources, $3,668.08; total school revenue, $6,668.08. One free library, 1,900 volumes.

LITCHFIELD.—Located in southeast part of Hillsborough county; area, 7,426 acres. Railroad station, Thornton's Ferry, on C. & M. railroad; banking town, Manchester or Nashua. Population, 1880, 291; 1890, 252. Ratable polls,

68; assessed valuation of land and buildings, $163,460; stock in trade, $14,189; money on hand, at interest, or on deposit, $13,222; stock in banks or corporations in state, $18,000; valuation of assessed live stock (137 horses, 6 oxen, 234 cows, 16 other cattle, 25 sheep), $14,031; total assessed valuation, $229,952. Taxes assessed, $1,254.74; rate of taxation, $5.54 on $100; surplus, $653.04. Agriculture is the principal occupation. Births, females, 2; total, 2; marriages, 1; deaths, males, 1; females, 3; total, 4; death rate per 1,000, 15.87. Town has 2 public schools; number of scholars, 37; average daily attendance, 26; amount raised for support of schools, $608; from other sources, $102.38; total school revenue, $710.38. One free library, 569 volumes; annual appropriation, $25.

Littleton.—Located in northwest part of Grafton county; area, 36,000 acres. Railroad stations, Littleton, Apthorp, South Littleton, on C. & M. railroad; a banking town. Population, 1880, 2,936; 1890, 3,365. Ratable polls, 847; assessed valuation of land and buildings, $1,123,527; stock in trade, $123,800; money on hand, at interest, or on deposit, $42,160; stock in banks or corporations in state, $84,650; valuation of assessed live stock (925 horses, 110 oxen, 1,221 cows, 262 other cattle, 1,171 sheep, 53 hogs), $91,665; total assessed valuation, $1,571,552. Taxes assessed, $33,592; rate of taxation, $2.14 on $100; net debt, $1,123.84. Agriculture and care of summer boarders are important occupations. The manufacture of lumber, paper boxes, bobbins, gloves and mittens, carriages, stereoscopic views, hone stone, etc., are the principal industries. Births, males, 38; females, 29; total, 67; marriages, 32; deaths, males, 35; females, 39; total, 74; death rate per 1,000, 21.99. Town has 20 public, 10 graded, and 1 high school; number of scholars, 656; average daily attendance, 440; amount raised for support of schools, $4,500; from other sources, $6,054.50; total school revenue, $10,554.50. One free library, 4,500 volumes; annual appropriation, $750.

Livermore.—Located in northeast part of Grafton county. Railroad station, Sawyer's River, on Maine Central railroad; banking town, Conway. Population, 1880,

103; 1890, 155. Ratable polls, 15; assessed valuation of land and buildings, $89,150; stock in trade, $5,000; valuation of assessed live stock (61 horses, 12 oxen, 3 cows, 20 hogs), $3,660; total assessed valuation, $99,310. Taxes assessed, $914.98; rate of taxation, $0.92 on $100. Lumbering is the principal industry. Births, males, 2; total, 2; no marriages nor deaths.

LONDONDERRY.—Located in western part of Rockingham county; area, 24,500 acres. Railroad stations, West Derry, North Londonderry, and Wilson's Crossing, on B. & M. railroad; banking town, Derry Depot. Population, 1880, 1,363; 1890, 1,220. Ratable polls, 319; assessed valuation of land and buildings, $408,287; mills and machinery, $7,200; stock in trade, $14,900; money on hand, at interest, or on deposit, $6,494: stock in banks or corporations in state, $6,600; valuation of assessed live stock (411 horses, 12 oxen, 814 cows, 81 other cattle, 54 sheep), $46,282; total assessed valuation, $522,400. Taxes assessed, $7,836; rate of taxation, $1.50 on $100; net debt, $1,416.30. Agriculture is an important occupation. The manufacture of lumber, staves, and shoes are the principal industries. Births, males, 2; females, 12; total, 14; marriages, 8; deaths, males, 19; females, 13; total, 32; death rate per 1,000, 26.22. Town has 9 public schools; number of scholars, 209; average daily attendance, 137; amount raised for support of schools, $2,025.85; from other sources, $533.99; total school revenue, $2,559.84. One free library, 2,094 volumes; annual appropriation, $100.

LOUDON.—Located in eastern part of Merrimack county; area, 28,257 acres. Railroad stations, Concord and Pittsfield, on C. & M. railroad; banking town, Concord. Population, 1880, 1,221; 1890, 1,000. Ratable polls, 312; assessed valuation of land and buildings, $404,387; stock in trade, $4,400; money on hand, at interest, or on deposit, $9,435; stock in banks or corporations in state, $2,000; valuation of assessed live stock (415 horses, 178 oxen, 753 cows, 408 other cattle, 876 sheep, 28 hogs), $55,208; total assessed valuation, $507,585. Taxes assessed, $7,106.19; rate of taxation, $1.40 on $100; net debt, $4,387.21. Agriculture is the principal occupation. The

manufacture of carriages and lumber are minor industries. Births, males, 4; females, 4; total, 8; marriages, 13; deaths, males, 4; females, 6; total, 10; death rate per 1,000, 10.00. Town has 11 public schools; number of scholars, 161; amount raised for support of schools, $1,221.74; from other sources, $876.22; total school revenue, $2,097.96.

Lyman.—Located in northwest part of Grafton county; area, improved land, 10,363 acres. Railroad station, Lisbon, on C. & M. railroad; banking town, Lisbon or Wells River, Vt. Population, 1880, 654; 1890, 543. Ratable polls, 148; assessed valuation of land and buildings, $131,530; mills and machinery, $5,300; stock in trade, $1,200; money on hand, at interest, or on deposit, $200; valuation of assessed live stock (271 horses, 16 oxen, 514 cows, 234 other cattle, 585 sheep, 33 hogs), $35,642; total assessed valuation, $188,672. Taxes assessed, $2,906.14; rate of taxation, $1.54 on $100; surplus, $411.70. Agriculture is the principal occupation. The manufacture of lumber, etc., are minor industries. Births, males, 2; females, 7; total 9; marriages, 4; deaths, males, 6; females, 1; total, 7; death rate per 1,000, 12.89. Town has 6 public schools; number of scholars, 102; average daily attendance, 90; amount raised for support of schools, $284.50; from other sources, $610.59; total school revenue, $895.09. One free library, 350 volumes.

Lyme.—Located in southwest part of Grafton county; area, 28,500 acres. Railroad stations, Thetford and Lyme, on B. & M. railroad; banking town, Hanover. Population, 1880, 1,313; 1890, 1,154; ratable polls, 293; assessed valuation of lands and buildings, $340,240; mills and machinery, $6,400; stock in trade, $14,210; money on hand, at interest, or on deposit, $16,600; valuation of assessed live stock (400 horses, 103 oxen, 1,119 cows, 295 other cattle, 2,207 sheep, 36 hogs), $68,166; total assessed valuation, $475,266. Taxes assessed, $5,225.85; rate of taxation, $1.10 on $100; surplus, $328.66. Agriculture is the principal occupation. The manufacture of lumber and clapboards are minor industries. Births, males, 13; females, 12; total, 25; marriages, 4; deaths, males, 12;

females, 11; total, 23; death rate per 1,000, 19.93. Town has 1 graded and 11 public schools; number of scholars, 249; average daily attendance, 184; amount raised for support of schools, $1,287.23; from other sources, $705 38; total school revenue, $1,992.51. One free library, 2,500 volumes.

LYNDEBOROUGH.—Located in central part of Hillsborough county; area, 20,760 acres. Railroad station, South Lyndeborough, on B. & M. railroad; banking town, Francestown. Population, 1880, 818; 1890, 657; ratable polls, 165; assessed valuation of land and buildings, $222,924; mills and machinery, $2,190; stock in trade, $6,050; money on hand, at interest, or on deposit, $2,770; stock in banks or corporations in state, $1,000; valuation of assessed live stock (191 horses, 38 oxen, 711 cows, 94 other cattle, 31 sheep, 4 hogs), $31,756; total assessed valuation, $284,422. Taxes assessed, $4,835.19; rate of taxation, $1.70 on $100; net debt, $193.42. Agriculture is the principal occupation; but little manufacturing is done. Births, males, 5; females, 4; total, 9; marriages, 8; deaths, males, 8; females, 9; total, 17; death rate per 1,000, 25.87. Town has 6 public schools; number of scholars, 117; average daily attendance, 78; amount raised for support of schools, $797; from other sources, $1,436.23; total school revenue, $2,233.23. One free library, 530 volumes.

MADBURY.—Located in southern part of Strafford county; area, 7,600 acres. Railroad station, Madbury, on B. & M. railroad; banking town, Dover. Population, 1880, 397; 1890, 367. Ratable polls, 95; assessed valuation of land and buildings, $166,388; stock in trade, $21,225; money on hand, at interest, or on deposit, $31,351; stock in banks or corporations in state, $12,600; valuation of assessed live stock (144 horses, 34 oxen, 280 cows, 80 other cattle, 115 sheep, 12 hogs), $22,621; total assessed valuation, $264,455. Taxes assessed, $2,304.91; rate of taxation, $0.87 on $100; surplus, $1,150.08. Agriculture is the principal occupation. Births, males, 2; females, 2; total, 4; marriages, 2; deaths, males, 4; females, 5; total, 9; death rate per 1,000, 24.52. Town has 3 public schools; number of scholars, 46; average

daily attendance, 40; amount raised for support of schools, $532; from other sources, $254.48; total school revenue, $786.48.

MADISON.—Located in central part of Carroll county; area, improved land, 6,232 acres. Railroad station, Madison, on B. & M. railroad; banking town, Rochester. Population, 1880, 586; 1890, 554. Ratable polls, 133; assessed valuation of land and buildings, $109,468; mills and machinery, $1,050; stock in trade, $4,480; money on hand, at interest, or on deposit, $2,206; valuation of assessed live stock (172 horses, 59 oxen, 196 cows, 48 other cattle, 222 sheep), $15,848; total assessed valuation, $146,468. Taxes assessed, $3,514.71; rate of taxation, $2.40 on $100; net debt, $777.12. Agriculture is the principal occupation. The manufacture of lumber, boxes, staves, and spool stock, are important industries. Births, males, 3; females, 2; total, 5; marriages, 3; deaths, males, 3; females, 3; total, 6; death rate per 1,000, 10.83. Town has 5 public schools; number of scholars, 89; average daily attendance, 76; amount raised for support of schools, $355.50; from other sources, $307.80; total school revenue, $663.30. One free library, 200 volumes.

MANCHESTER.—Located in northeast part of Hillsborough county; area, 21,700 acres. Railroad station, Manchester, on C. & M. and B. & M. railroads; a banking town. Population, 1880, 32,630; 1890, 44,126. Ratable polls, 11,835; assessed valuation of land and buildings, $15,944,694; mills and machinery, $6,667,906; stock in trade, $2,551,318; money on hand, at interest, or on deposit, $249,964; stock in banks or corporations in state, $317,600; valuation of assessed live stock (2,777 horses, 11 oxen, 473 cows, 67 other cattle, 13 sheep, 12 hogs), $221,846; total assessed valuation, $27,444,142. Taxes assessed, $507,640.81; rate of taxation, $1.85 on $100; net debt, $832,933.17. The manufacture of cotton and woolen goods are the principal industries. The manufacture of boots and shoes, locomotives and steam fire engines, cigars, paper, furniture, etc., are very important industries, to say nothing of the many other branches of manufacturing and business usually carried on in a municipality of over

40,000 inhabitants. Births, males, 481; females, 503; total, 1,029; marriages, 739; deaths, males, 501; females, 525; total, 1,026; death rate per 1,000, 23.52. Town has 90 public, 85 graded, and 1 high school; number of scholars, 5,066; average daily attendance, 3,011; amount raised for support of schools, $71,767.58; from other sources, $6,587.64; total school revenue, $78,355.22. One free library, 35,096 volumes; annual appropriation, $3,800.

MARLBOROUGH.—Located in central part of Cheshire county; area, 13,000 acres. Railroad stations, Marlborough on B. & M. R. R. and Marlborough Depot on Fitchburg railroad; banking town, Keene. Population, 1880, 1,286; 1890, 1,695. Ratable polls, 452; assessed valuation of lands and buildings, $431,388; mills and machinery, $36,800; stock in trade, $29,556; money on hand, at interest, or on deposit, $47,649; stock in banks or corporations in state, $6,900; valuation of assessed live stock, (285 horses, 32 oxen, 336 cows, 95 other cattle, 91 sheep, 9 hogs), $36,922; total assessed valuation, $636,185. Taxes assessed, $8,909.75; rate of taxation, $1.40 on $100; net debt, $5,271.42. Agriculture is the principal occupation. The manufacture of blankets, yarns, pails, boxes, woodenware, sash, blinds, skates, and curry combs are important industries. Births, males, 27; females, 27; total, 54; marriages, 8; deaths, males, 17; females, 16; total, 33; death rate per 1,000, 19.46. Town has 7 public, 6 graded, and 1 high school; number of scholars, 327; average daily attendance, 231; amount raised for support of schools, $1,853; from other sources, $2,217.60; total school revenue, $4,070.60; one free library, 4,600 volumes; annual appropriation, $100.

MARLOW.—Located in northern part of Cheshire county; area, 16,937 acres. Railroad stations, Keene on Fitchburg railroad, and Hancock Junction on B. & M. railroad; banking town, Keene. Population, 1880, 701; 1890, 584. Ratable polls, 149; assessed valuation of land and buildings, $162,700; mills and machinery, $4,750; stock in trade, $8,000; money on hand, at interest, or on deposit, $17,575; stock in banks or corporations in state, $30,077; valuation of assessed live stock (210 horses, 61 oxen,

330 cows, 136 other cattle, 1,242 sheep, 16 hogs), $33,466; total assessed valuation, $276,464. Taxes assessed, $1,852.74; rate of taxation, $0.65 on $100; surplus, $572.71. Agriculture is the principal occupation. The manufacture of lumber, leather, rakes, chair stock, etc., are minor industries. Births, males, 5; females, 4; total, 9; marriages, 7; deaths, males, 9; females, 8; total, 17; death rate per 1,000, 29.10. Town has 8 public, 1 graded, and 1 high school; number of scholars, 109; average daily attendance, 80; amount raised for support of schools, $829.50; from other sources, $358.32; total school revenue, $1,187.82; one free library, 708 volumes; annual appropriation, $50.

Mason.—Located in southern part of Hillsborough county. Railroad station, Mason Centre, on Fitchburg railroad; banking town, Townsend, Mass. Population, 1880, 645; 1890, 629. Ratable polls, 158; assessed valuation of land and buildings, $241,318; mills and machinery, $2,650; stock in trade, $10,662; money on hand, at interest, or on deposit, $22,641; valuation of assessed live stock (147 horses, 20 oxen, 357 cows, 62 other cattle, 17 sheep, 3 hogs), $21,139; total assessed valuation, $315,416. Taxes assessed, $3,789.69; rate of taxation, $1.20 on $100; net debt, $217.47. Agriculture is the principal occupation. Births, males, 3; females, 6; total, 9; marriages, 11; deaths, males, 6; females, 5; total, 11; death rate per 1,000, 17.48. Town has 6 public schools; number of scholars, 103; average daily attendance, 73; amount raised for support of schools, $519.50; from other sources, $1,710.91; total school revenue, $2,250.41.

Meredith.—Located in northern part of Belknap county; area, improved land, 16,586 acres. Railroad station, Meredith, on C. & M. railroad; banking town, Laconia. Population, 1880, 1,800; 1890, 1,642. Ratable polls, 431; assessed valuation of land and buildings, $452,153; mills and machinery, $7,600; stock in trade, $23,450; money on hand, at interest, or on deposit, $22,500; stock in banks or corporations in state, $7,400; valuation of assessed live stock (419 horses, 168 oxen, 654 cows, 288 other cattle, 383 sheep, 49 hogs), $51,700; total

assessed valuation, $608,843. Taxes assessed, $12,818.78; rate of taxation, $2.11 on $100; surplus, $8,201.53. Agriculture is the principal occupation. The manufacture of lumber, shooks, sash, doors, patent plow improvements, and boxes, are minor industries. Births, males, 12; females, 9; total, 21; marriages, 11; deaths, males, 17; females, 15; total, 32; death rate per 1,000, 19.48. Town has 15 public, 4 graded, and 1 high school; number of scholars, 297; average daily attendance, 119; amount raised for support of schools, $1,968.50; from other sources, $467.20; total school revenue, $2,435.70. One free library, 2,027 volumes; annual appropriation, $270.

MERRIMACK.—Located in eastern part of Hillsborough county; area, 19,361 acres. Railroad stations, Merrimack, Reed's Ferry, and Thornton's Ferry, on C. & M. railroad; banking town, Nashua. Population, 1880, 1,042; 1890, 951. Ratable polls, 234; assessed valuation of land and buildings, $461,499; mills and machinery, $22,950; stock in trade, $19,175; money on hand, at interest, or on deposit, $2,200; stock in banks or corporations in state, $10,160; valuation of assessed live stock (233 horses, 32 oxen, 523 cows, 84 other cattle, 44 sheep), $33,027; total assessed valuation, $573,106. Taxes assessed, $7,259.07; rate of taxation, $1.27 on $100; net debt, $1,950.16. Agriculture is an important occupation. The manufacture of cooper's stock, extension tables, overalls, kits and barrel heads, shingles, etc., are the principal industries. Births, males, 6; females, 2; total, 8; marriages, 3; deaths, males, 10; females, 12; total, 22; death rate per 1,000, 23.13. Town has 9 public and 1 high school; number of scholars, 204; average daily attendance, 128; amount raised for support of schools, $1,895.50; from other sources, $1,366.49; total school revenue, $3,261.99.

MIDDLETON.—Located in northern part of Strafford county; area, 9,840 acres. Railroad station, Union, on B. & M. railroad; banking town, Rochester. Population, 1880, 355; 1890, 207. Ratable polls, 75; assessed valuation of land and buildings, $79,705; mills and machinery, $1,200; stock in trade, $4,025; money on hand, at inter-

est, or on deposit, $50; valuation of assessed live stock (85 horses, 36 oxen, 99 cows, 72 other cattle, 168 sheep, 4 hogs), $8,618; total assessed valuation, $101,213. Taxes assessed, $1,366.83; rate of taxation, $1.35 on $100; surplus, $1,322.81. Agriculture is the principal occupation. Births, females, 3; total, 3; marriages, 3; deaths, males, 3; females, 2; total, 5; death rate per 1,000, 24.15. Town has 3 public schools; number of scholars, 44; average daily attendance, 38; amount raised for support of schools, $213.50; from other sources, $170.38; total school revenue, $383.88.

Milan.—Located in eastern part of Coös county; area, 31,154 acres. Railroad station, Berlin Falls and West Milan, on Grand Trunk railroad; banking towns, Berlin Falls, Lancaster, or Portland, Me. Population, 1880, 895; 1890, 1,029. Ratable polls, 258; assessed valuation of land and buildings, $170,355; mills and machinery, $2,600; stock in trade, $44,390; money on hand, at interest, or on deposit, $5,825; stock in banks or corporations in state, $600; valuation of assessed live stock (492 horses, 66 oxen, 378 cows, 122 other cattle, 613 sheep, 29 hogs), $30,576; total assessed valuation, $280,146. Taxes assessed, $7,283.79; rate of taxation, $2.60 on $100; surplus, $173.50. Agriculture is the principal occupation. The manufacture of carriages and harness are minor industries. Births, males, 6; females, 13; total, 19; marriage, 1; deaths, males, 5; females, 12; total, 17; death rate per 1,000, 16.52. Town has 8 public and two graded schools; number of scholars, 227; average daily attendance, 157; amount raised for support of schools, $1,000; from other sources, $421.04; total school revenue, $1,421.04.

Milford.—Located in central part of Hillsborough county; area, 15,4[illegible]2 acres. Railroad station, Milford, on B. & M. railroad; a banking town. Population, 1880, 2,398; 1890, 3,014. Ratable polls, 784; assessed valuation of land and buildings, $1,159,260; mills and machinery, $151,350; stock in trade, $111,650; money on hand, at interest, or on deposit, $132,640; stock in banks or corporations in state, $57,000; valuation of assessed live stock

(533 horses, 8 oxen, 835 cows, 103 other cattle, 52 sheep, 1 hog), $62,830; total assessed valuation, $1,764,982. Taxes assessed, $30,006.54; rate of taxation, $1.70 on $100; net debt, $89,287.44. Agriculture is an important occupation. The manufacture of hosiery, fancy boxes, piano keys, furniture, clothing, planes, P. O. boxes, cotton yarn, carriages, paper boxes, are the principal industries. Births, males, 30; females, 27; total 57; marriages, 21; deaths, males, 27; females, 33; total, 60; death rate per 1,000, 19.90. Town has 11 public, 6 graded, and 1 high school; number of scholars, 564; average daily attendance, 428; amount raised for support of schools, $7,000; from other sources, $984.42; total school revenue, $7,984.42. One free library, 4,000 volumes; annual appropriation, $300.

MILTON.—Located in northeast part of Strafford county; area, 25,000 acres. Railroad stations, Milton and Union, on B. & M. railroad; banking town, Somersworth or Rochester. Population, 1880, 1,516; 1890, 1,640. Ratable polls, 391; assessed valuation of land and buildings, $422,440; mills and machinery, $33,550; stock in trade, $25,250; money on hand, at interest, or on deposit, $22,450; stock in banks or corporations in state, $2,500; valuation of assessed live stock (324 horses, 52 oxen, 383 cows, 92 other cattle, 206 sheep), $31,585; total assessed valuation, $578,410. Taxes assessed, $13,014.09; rate of taxation, $2.25 on $100; surplus, 1,111.85. Agriculture is an important occupation. The manufacture of boots and shoes, felt cloth, flannels, shoe knives, caskets, leatherboard, manilla paper, blankets, repellents, etc., are important industries. Births, males, 13; females, 11; total, 24; marriages, 11; deaths, males, 12; females, 10; total, 22; death rate per 1,000, 13.29. Town has 14 public, 7 graded, and 1 high school; number of scholars, 309; average daily attendance, 230; amount raised for support of schools, $1,144.50; from other sources, $5,594.05; total school revenue, $6,738.55. One free library, 400 volumes.

MONROE.—Located in northwest part of Grafton county; area, 8,246 acres. Railroad stations, McIndoes Falls and Barnet, Vt., on B. & M. railroad; banking town, Wells River, Vt. Population, 1880, 504; 1890, 478. Ratable

polls, 126; assessed valuation of land and buildings, $146,306; mills and machinery, $30,900; stock in trade, $48,000; money on hand, at interest, or on deposit, $23,152; stock in banks or corporations in state, $1,500; valuation of assessed live stock (237 horses, 22 oxen, 427 cows, 184 other cattle, 837 sheep, 68 hogs), $30,734; total assessed valuation, $293,252. Taxes assessed, $3,460.02; rate of taxation, $1.18 on $100; net debt, $7,378.67. Agriculture is the principal occupation. The manufacture of lumber, sash, doors, and butter tubs are minor industries. Births, males, 3; females, 2; total, 5; marriages, 4; deaths, males, 6; females, 4; total, 10; death rate per 1,000, 20.92. Town has 6 public schools; number of scholars, 116; average daily attendance, 75; amount raised for support of schools, $553.50; from other sources, $235.48; total school revenue, $778.98.

MONT VERNON.—Located in central part of Hillsborough county; area, 7,957 acres. Railroad station, Milford, on B. & M. railroad; banking town, Milford. Population, 1880, 521; 1890, 479. Ratable polls, 122; assessed valuation of land and buildings, $248,296; mills and machinery, $1,000; stock in trade, $1,200; money on hand, at interest, or on deposit, $9,700; stock in banks or corporations in state, $300; valuation of assessed live stock (164 horses, 8 oxen, 387 cows, 27 other cattle, 1 sheep), $21,052; total assessed valuation, $294,598. Taxes assessed, $3,289.61; rate of taxation, $1.30 on $100; net debt, $261.46. Agriculture and care of summer boarders are the principal occupations. Births, males, 3; females, 1; total, 4; marriages, 4; deaths, males, 1; females, 3; total, 4; death rate per 1,000, 8.35. Town has 4 public schools; number of scholars, 54; average daily attendance, 37; amount raised for support of schools, $940; from other sources, $127.64; total school revenue, $1,067.64. One free library, 951 volumes.

MOULTONBOROUGH.—Located in western part of Carroll county; area, improved land, 8,246 acres. Railroad stations, West Ossipee, on B. & M. railroad, and Meredith, on C. & M. railroad; banking town, Wolfeborough. Population, 1880, 1,254; 1890, 1,034. Ratable polls, 268;

assessed valuation of land and buildings, $253,270; stock in trade, $24,716; money on hand, at interest, or on deposit, $4,400; stock in banks or corporations in state, $5,700; valuation of assessed live stock (262 horses, 162 oxen, 323 cows, 251 other cattle, 416 sheep, 6 hogs), $34,876; total assessed valuation, $351,137. Taxes assessed, $5,828.87; rate of taxation, $1.66 on $100; net debt, $3,392.76. Agriculture is the principal occupation. Very little manufacturing is done. Births, males, 11; females, 7; total, 18; marriages, 9; deaths, males, 6; females, 13; total, 19; death rate per 1,000, 18.37. Town has 10 public schools; number of scholars, 225; average daily attendance, 189; amount raised for support of schools, $1,000; from other sources, $421.75; total school revenue, $1,421.75.

NASHUA.—Located in southeast part of Hillsborough county; area, 18,898 acres. Railroad stations, Nashua, and Nashua Junction on B. & M. and C. & M. railroads; a banking town. Population, 1880, 13,397; 1890, 19,311. Ratable polls, 5,333; assessed valuation of land and buildings, $7,814,278; mills and machinery, $2,568,700; stock in trade, $922,650; money on hand, at interest, or on deposit, $222,588; stock in banks or corporations in state, $203,510; valuation of assessed live stock (1,364 horses, 10 oxen, 644 cows, 19 other cattle, 28 sheep, 28 hogs), $117,106; total assessed valuation, $12,502,142. Taxes assessed, $237,531.74; rate of taxation, $1.90 on $100; net debt, $448,022. The manufacture of knit goods and knitting machinery, dairy goods, boots and shoes, paper boxes, steam boilers, machinery, machinists' tools, furniture, sash and blinds, rasps and files, sheetings and shirtings, cotton flannels, brass, iron, and steel castings, toys, spring beds, ice cream freezers, soapstone ware, patent money-drawers, etc., are the most important industries. Births, males, 354; females, 336; total, 690; marriages, 266; deaths, males, 199; females, 203; total, 402; death rate per 1,000, 20.81. Town has 60 public, 52 graded, and 1 high school; number of scholars, 2,754; average daily attendance, 1,804; amount raised for support of schools, $20,450.50; from other sources, $28,660.26; total school revenue, $49,110.76. One free library, 2,801 volumes; annual appropriation, $2,500.

Nelson.—Located in eastern part of Cheshire county; area, 22,875 acres. Railroad stations, Keene, on Fitchburg railroad, and Harrisville, on B. & M. railroad; banking town, Keene. Population, 1880, 438; 1890, 332. Ratable polls, 61; assessed valuation of land and buildings, $108,099; mills and machinery, $5,125; stock in trade, $2,600; money on hand, at interest, or on deposit, $810; valuation of assessed live stock (92 horses, 26 oxen, 163 cows, 59 other cattle, 388 sheep, 2 hogs), $12,435; total assessed valuation, $135,379. Taxes assessed, $2,084.82; rate of taxation, $1.54 on $100; net debt, $795.86. Agriculture is the principal occupation. The manufacture of chairs is a minor industry. Births, males, 1; females, 3; total, 4; marriages, 3; deaths, male, 1; female, 1; total, 2; death rate per 1,000, 6.02. Town has 3 public schools; number of scholars, 49; average daily attendance, 40; amount raised for support of schools, $300; from other sources, $147; total school revenue, $447. One free library, 648 volumes.

New Boston.—Located in central part of Hillsborough county; area, 26,536 acres. Railroad station, New Boston, on C. & M. railroad; banking town, Francestown or Manchester. Population, 1880, 1,144; 1890, 1,067. Ratable polls, 263; assessed valuation of land and buildings, $409,631; mills and machinery, $10,800; stock in trade, $28,175; money on hand, at interest, or on deposit, $36,234; stock in banks or corporations in state, $2,380; valuation of assessed live stock (365 horses, 84 oxen, 965 cows, 206 other cattle, 286 sheep, 246 hogs), $63,583; total assessed valuation, $582,868. Taxes assessed, $7,636.01; rate of taxation, $1.31 on $100; net debt, $2,627.93. Agriculture is the principal occupation. The manufacture of furniture, knobs, spokes, and toy wagons are minor industries. Births, males, 11; females, 8; total, 19; marriages, 6; deaths, males, 13; females, 11; total, 24; death rate per 1,000, 22.49. Town has 12 public, 3 graded, and 1 high school; number of scholars, 225; average daily attendance, 152; amount raised for support of schools, $1,700; from other sources, $1,379.29; total school revenue, $3,079.29. One free library.

Newbury.—Located in southwest part of Merrimack county. Railroad stations, Lake Sunapee and Newbury,

on B. & M. railroad; banking town, Newport. Population, 1880, 590; 1890, 487. Ratable polls, 133; assessed valuation of land and buildings, $201,656; mills and machinery, $2,200; stock in trade, $8,600; money on hand, at interest, or on deposit, $10,965; stock in banks or corporations in state, $3,600; valuation of assessed live stock (182 horses, 62 oxen, 350 cows, 124 other cattle, 422 sheep, 14 hogs), $27,685; total assessed valuation, $271,188. Taxes assessed, $2,712.18; rate of taxation, $1.00 on $100; net debt, $441.38. Agriculture is the principal occupation. Births, males, 5; females, 4; total, 9; marriages, 3; deaths, males, 4; females, 6; total, 10; death rate per 1,000, 20.53. Town has 7 public schools; number of scholars, 70; average daily attendance, 62; amount raised for support of schools, $650; from other sources, $370.48; total school revenue, $1,020.48.

NEWCASTLE.—Located in eastern part of Rockingham county (Portsmouth Harbor); area, 458 acres. Railroad station, Portsmouth, on B. & M. railroad; banking town, Portsmouth. Population, 1880, 610; 1890, 488. Ratable polls, 150; assessed valuation of land and buildings, $175,954; stock in trade, $3,106; stock in banks or corporations in state, $5,700; valuation of assessed live stock (66 horses, 32 cows), $6,414; total assessed valuation, $211,870. Taxes assessed, $4,121.92; rate of taxation, $1.94 on $100; net debt, $22,409.41. Fishing is the principal occupation. Births, males, 2; females, 3; total, 5; marriage, 1; deaths, males, 4; females, 6; total, 10; death rate per 1,000, 20.49. Town has 2 public schools; number of scholars, 67; average daily attendance, 43; amount raised for support of schools, $500; from other sources, $178.31; total school revenue, $678.31.

NEW DURHAM.—Located in northwest part of Strafford county; area, 23,625 acres. Railroad station, New Durham, on B. & M. railroad; banking town, Farmington. Population, 1880, 772; 1890, 579. Ratable polls, 192; assessed valuation of land and buildings, $175,450; mills and machinery, $4,500; stock in trade, $4,000; money on hand, at interest, or on deposit, $3,500; valuation of assessed live stock (171 horses, 62 oxen, 229 cows, 108 other cattle, 84 sheep, 2 hogs), $20,578; total assessed val-

uation, $227,878. Taxes assessed, $4,673.81; rate of taxation, $2.05 on $100; net debt, $2,131.07. Agriculture is the principal occupation. The manufacture of shoe knives and tools, and wire brushes are important industries. Births, males, 13; females, 11; total 24; marriages, 3; deaths, males, 6; females, 8; total, 14; death rate per 1,000, 24.17. Town has 7 public schools; number of scholars, 111; average daily attendance, 84; amount raised for support of schools, $434; from other sources, $817.40; total school revenue, $1,251.40.

NEW HAMPTON.—Located in northwest part of Belknap county; area, 19,422 acres. Railroad station, Bristol, on B. & M. railroad; banking town, Laconia or Tilton. Population, 1880, 1,059; 1890, 935. Ratable polls, 217; assessed valuation of land and buildings, $228,500; stock in trade, $9,365; money on hand, at interest, or on deposit, $5,300; stock in banks or corporations in state, $300; valuation of assessed live stock (285 horses, 104 oxen, 502 cows, 252 other cattle, 563 sheep, 17 hogs), $35,562; total assessed valuation, $301,137. Taxes assessed, $5,360.51; rate of taxation, $1.78 on $100; surplus, $1,118.14. Agriculture is the principal occupation. Births, males, 2; females, 3; total, 5; marriages, 7; deaths, males, 16; females, 9; total 25; death rate per 1,000, 26.73. Town has 10 public schools; number of scholars, 165; average daily attendance, 110; amount raised for support of schools, $595; from other sources, $643.90; total school revenue, $1,238.90. One free library, 1,630 volumes.

NEWINGTON.—Located in northeast part of Rockingham county; area, 5,273 acres. Railroad station, Newington, on B. & M. railroad; banking town, Portsmouth. Population, 1880, 433; 1890, 401. Ratable polls, 98; assessed valuation of land and buildings, $178,611; stock in trade, $4,900; money on hand, at interest, or on deposit, $3,750; stock in banks or corporations in state, $3,783; valuation of assessed live stock (163 horses, 8 oxen, 475 cows, 43 other cattle, 36 sheep, 12 hogs), $22,683; total assessed valuation, $224,927. Taxes assessed, $3,143.54; rate of taxation, $0.95 on $100; net debt, $500.45. Agriculture is the principal occupation. Births, males, 3; females, 2; total, 5; marriages, 4; deaths, males, 4; females, 3; total, 7;

death rate per 1,000, 17.45. Town has 1 public school; number of scholars, 42; average daily attendance, 20; amount raised for support of schools, $370.41; from other sources, $165.02; total school revenue, $535.43. One free library, 307 volumes.

NEW IPSWICH.—Located in southwest part of Hillsborough county; area, 20,860 acres. Railroad station, Greenville, on B. & M. railroad; banking town, Nashua. Population, 1880, 1,222; 1890, 969. Ratable polls, 217; assessed valuation of land and buildings, $343,842; mills and machinery, $106,410; stock in trade, $11,676; money on hand, at interest, or on deposit, $2,100; valuation of assessed live stock (218 horses, 17 oxen, 426 cows, 76 other cattle, 16 sheep), $26,474; total assessed valuation, $514,568. Taxes assessed, $8,627.94; rate of taxation, $1.68 on $100; net debt, $3,853.44. Agriculture is the principal occupation. The manufacture of denims, cheviots, boxes, and cigars are also important industries. Births, males, 11; females, 16; total, 27; marriages, 9; deaths, males, 7; females, 17; total, 24; death rate per 1,000, 24.76. Town has 8 public schools; number of scholars, 163; average daily attendance, 106; amount raised for support of schools, $1,800; from other sources, $1,343.50; total school revenue, $2,143.50. One subscription library, 1,700 volumes.

NEW LONDON.—Located in western part of Merrimack county; area, improved land, 11,000 acres. Railroad stations, Potter Place and Bradford, on B. & M. railroad; banking town, Concord or Warner. Population, 1880, 875; 1890, 799. Ratable polls, 184; assessed valuation of land and buildings, $225,125; stock in trade, $9,600; money on hand, at interest, or on deposit, $42,687; stock in banks or corporations in state, $800; valuation of assessed live stock (314 horses, 129 oxen, 350 cows, 163 other cattle, 730 sheep, 13 hogs), $41,333; total assessed valuation, $345,680. Taxes assessed, $3,802.70; rate of taxation, $1.10 on $100; surplus, $530.21. Agriculture is the principal occupation. Very little manufacturing is done. Births, males, 4; females, 2; total, 6; marriages, 7; deaths, male, 1; females, 3; total, 4; death rate per 1,000, 5.00. Town has 6 public schools; number of scholars,

136; average daily attendance, 107; amount raised for support of schools, $883.50; from other sources, $408.79; total school revenue, $1,292.29.

NEWMARKET.—Located in northern part of Rockingham county; area, improved land, 4,844 acres. Railroad station, Newmarket, on B. & M. railroad; a banking town. Population, 1880, 2,368; 1890, 2,742. Ratable polls, 698; assessed valuation of land and buildings, $633,466; mills and machinery, $364,910; stock in trade, $117,190; money on hand, at interest, or on deposit, $20,246; stock in banks or corporations in state, $27,500; valuation of assessed live stock (277 horses, 44 oxen, 437 cows, 41 other cattle, 69 sheep, 7 hogs), $29,804; total assessed valuation, $1,275,120. Taxes assessed, $22,059.57; rate of taxation, $1.73 on $100; net debt, $14,168.84. The manufacture of cotton batting, clothing, sheetings, shirtings, and twills, boots and shoes, are the principal industries. Births, males, 25; females, 31; total, 66; marriages, 19; deaths, males, 32; females, 39; total, 71; death rate per 1,000, 25.90. Town has 10 public, 7 graded, and 1 high school; number of scholars, 477; average daily attendance, 279; amount raised for support of schools, $4,500; from other sources, $654.50; total school revenue, $5,154.50. One free library, 2,200 volumes; annual appropriation, $250.

NEWPORT.—Located in central part of Sullivan county; area, 25,267 acres. Railroad station, Newport, on B. & M. railroad; a banking town. Population, 1880, 2,612; 1890, 2,623. Ratable polls, 708; assessed valuation of land and buildings, $982,024; mills and machinery, $84,700; stock in trade, $75,800; money on hand, at interest, or on deposit, $36,706; stock in banks or corporations in state, $99,564; valuation of assessed live stock (715 horses, 122 oxen, 801 cows, 270 other cattle, 1,484 sheep, 40 hogs), $80,928; total assessed valuation, $1,436,614. Taxes assessed, $28,732.28; rate of taxation, $2.00 on $100; net debt, $104,439.77. Agriculture is an important occupation. The manufacture of woolen dress goods, cotton underwear, flannels, boots and shoes, scythes, butter tubs, and shoe boxes, are the most important industries. Births, males, 36; females, 25; total, 64; marriages, 30; deaths, males, 35; females, 45; total, 80; death rate per 1,000, 30.49. Town has 15

public, 7 graded, and 1 high school; number of scholars, 505; average daily attendance, 373; amount raised for support of schools, $6,267.74; from other sources, $1,334.02; total school revenue, $7,601.76. One free library, 4,000 volumes.

NEWTON.—Located in southern part of Rockingham county; area, 5,250 acres. Railroad stations, Newton and Newton Junction, on B. & M. railroad; banking town, Haverhill, Mass., or Merrimac, Mass. Population, 1880, 1,006; 1890, 1,064. Ratable polls, 287; assessed valuation of land and buildings, $299,937; mills and machinery, $3,000; stock in trade, $23,740; money on hand, at interest, or on deposit, $6,400; valuation of assessed live stock (213 horses, 8 oxen, 188 cows, 7 other cattle, 9 hogs), $19,155; total assessed valuation, $382,437. Taxes assessed, $6,960.35; rate of taxation, $1.82 on $100; net debt, $11,146.64. Agriculture is the principal occupation. The manufacture of carriages, shoes, and shoe boxes are the main mechanical industries. Births, males, 9; females, 8; total, 17; marriages, 13; deaths, males, 13; females, 12; total, 25; death rate per 1,000, 23.49. Town has 5 public and 1 graded school; number of scholars, 188; average daily attendance, 141; amount raised for support of schools, $1,042.50; from other sources, $562.50; total school revenue, $1,605. One free library, 304 volumes.

NORTHFIELD.—Located in northern part of Merrimack county; area, 17,000 acres. Railroad station, Northfield, on C. & M. railroad; banking town, Tilton. Population, 1880, 918; 1890, 1,115. Ratable polls, 245; assessed valuation of land and buildings, $388,714; mills and machinery, $33,500; stock in trade, $11,190; money on hand, at interest, or on deposit, $9,222; stock in banks or corporations in state, $2,300; valuation of assessed live stock (270 horses, 61 oxen, 384 cows, 88 other cattle, 251 sheep, 5 hogs), $27,069; total assessed valuation, $499,436. Taxes assessed, $6,450.04; rate of taxation, $1.29 on $100; surplus, $811.37. Agriculture is the principal occupation. The manufacture of hosiery is an important industry. Births, males, 4; females, 10; total, 14; marriages, 6; deaths, males, 12; females, 11; total, 23; death rate per 1,000, 20.62. Town has 6 public schools; number of scholars,

76; average daily attendance, 58; amount raised for support of schools, $526.66; from other sources, $581.12; total school revenue, $1,107.78. One free library, 385 volumes; annual appropriation, $250 (one half paid by Tilton.)

North Hampton.—Located in eastern part of Rockingham county; area, improved land, 5,363 acres. Railroad station on B. & M. railroad; banking town, Exeter or Portsmouth. Population, 1880, 774; 1890, 804. Ratable polls, 201; assessed valuation of land and buildings, $525,228; mills and machinery, $3,825; stock in trade, $4,100; money on hand, at interest, or on deposit, $5,300; stock in banks or corporations in state, $500; valuation of assessed live stock (238 horses, 8 oxen, 697 cows, 105 other cattle, 226 sheep, 24 hogs), $32,661; total assessed valuation, $598,745. Taxes assessed, $6,587.26; rate of taxation, $1.10 on $100; net debt, $840.96. Agriculture is the principal occupation. The manufacture of carriages is a minor industry. Births, males, 6; females, 7; total, 13; marriages, 2; deaths, males, 3; females, 6; total, 9; death rate per 1,000, 11.19. Town has 4 public and 4 graded schools; number of scholars, 125; average daily attendance, 94; amount raised for support of schools $1,323; from other sources, $426.80; total school revenue, $1,749.80.

Northumberland.—Located in western part of Coös county; area, improved land, 6,555 acres. Railroad stations, Groveton, on Grand Trunk railway, Groveton Junction and Northumberland on C. & M. railroad; banking town, Lancaster or Portland, Me. Population, 1880, 1,062; 1890, 1,356. Ratable polls, 461; assessed valuation of land and buildings, $368,580; mills and machinery, $26,900; stock in trade, $70,305; money on hand, at interest, or on deposit, $8,450; stock in banks or corporations in state, $9,000; valuation of assessed live stock (464 horses, 31 oxen, 490 cows, 211 other cattle, 736 sheep, 28 hogs), $43,614; total assessed valuation, $572,949. Taxes assessed, $8,880.71; rate of taxation, $1.55 on $100; surplus, $173.50. Agriculture is the principal occupation. The manufacture of lumber, pulp, and paper are important industries. Births, males, 16; females, 17; total, 33; marriages, 10; deaths, males, 12;

females, 8; total, 20; death rate per 1,000, 14.74. Town has 12 public and 1 graded school; number of scholars, 310; average daily attendance, 250; amount raised for support of schools, $3,185; from other sources, $440.80; total school revenue, $3,625.80. One free library, 433 volumes; annual appropriation, $100.

NORTHWOOD.—Located in northern part of Rockingham county; area, 17,075 acres. Railroad station, Epsom, on C. & M. railroad, and Newmarket on B. & M. railroad; banking town, Concord or Newmarket. Population, 1880, 1,345; 1890, 1,478. Ratable polls, 370; assessed valuation of land and buildings, $384,666; mills and machinery, $3,100; stock in trade, 24,795; money on hand, at interest, or on deposit, $21,265; stock in banks or corporations in state, $8,900; valuation of assessed live stock (418 horses, 73 oxen, 336 cows, 103 other cattle, 92 sheep, 8 hogs), $34,182; total assessed valuation, $515,898. Taxes assessed, $9,139.69; rate of taxation, $1.87 on $100; net debt, $13,164.83. Agriculture is the principal occupation. The manufacture of boots, shoes, and slippers are the most important industries. Births, males, 10; females, 9; total, 19; marriages, 16; deaths, males, 12; females, 12; total, 24; death rate per 1,000, 16.24. Town has 8 public and 2 graded schools; number of scholars, 205; average daily attendance, 160; amount raised for support of schools, $1,504.50; from other sources, $821.18; total school revenue, $2,325.68. One free library, 400 volumes; annual appropriation, $25.

NOTTINGHAM.—Located in northern part of Rockingham county; area, 25,800 acres. Railroad stations, Newmarket and Lee, on B. & M. railroad; banking town, Newmarket or Epping. Population, 1880, 1,095; 1890, 988. Ratable polls, 253; assessed valuation of land and buildings, $238,356; mills and machinery, $12,900; stock in trade, $34,026; money on hand, at interest, or on deposit, $4,000; stock in banks or corporations in state, $3,800; valuation of assessed live stock (268 horses, 92 oxen, 404 cows, 82 other cattle, 204 sheep, 10 hogs), $26,916; total assessed valuation, $345,598. Taxes assessed, $3,628.78; rate of taxation, $1.05 on $100; net debt, $3,833.27. Agriculture is the principal occupation. Births, males, 4; females, 6;

total, 10; marriages, 6; deaths, males, 10; females, 13; total, 23; death rate per 1,000, 23.27. Town has 9 public schools; number of scholars, 152; average daily attendance, 104; amount raised for support of schools, $947.50; from other sources, $1,763.69; total school revenue, $2,711.19.

ORANGE.—Located in southern part of Grafton county; area, 16,000 acres. Railroad station, Canaan, on B. & M. railroad; banking town, Concord. Population, 1880, 335; 1890, 245. Ratable polls, 58; assessed valuation of land and buildings, $49,765; mills and machinery, $150; stock in trade, $100; money on hand, at interest, or on deposit, $500; valuation of assessed live stock (98 horses, 39 oxen, 154 cows, 40 other cattle, 500 sheep), $11,024; total assessed valuation, $67,339. Taxes assessed, $1,448.03; rate of taxation, $2.15 on $100; surplus, $854.73. Agriculture is the principal occupation. The manufacture of shingles and butter-tubs are minor industries. Births, males, 3; females, 3; total, 6; marriages, 2; deaths, males, 3; female, 1; total, 4; death rate per 1,000, 16.31. Town has 6 public schools; number of scholars, 45; average daily attendance, 41; amount raised for support of schools, $350; from other sources, $71.68; total school revenue, $421.68.

ORFORD.—Located in western part of Grafton county; area, 27,000 acres. Railroad station, Fairlee, Vt., on Central Vermont railroad; a banking town. Population, 1880, 1,050; 1890, 916. Ratable polls, 215; assessed valuation of land and buildings, $295,429; mills and machinery, $4,000; stock in trade, $13,105; money on hand, at interest, or on deposit, $10,900; stock in banks or corporations in state, $600; valuation of assessed live stock (375 horses, 82 oxen, 960 cows, 267 other cattle, 1,049 sheep, 47 hogs), $55,715; total assessed valuation, $402,329. Taxes assessed, $6,039.48; rate of taxation, $1.50 on $100; net debt, $1,625.15. Agriculture is the principal occupation. The manufacture of bobbins, furniture, and hoops are the most important industries. Births, males, 16; females, 11; total, 27; marriages, 8; deaths, males, 8; females, 13; total, 21; death rate per 1,000, 22.92. Town has 10 public and 4 graded schools; number of scholars, 204; average daily attendance, 143 amount raised for support of schools,

$1,458; from other sources, $549.52; total school revenue, $2,007.52. One subscription library, 612 volumes.

OSSIPEE.—Located in southerly part of Carroll county; area, 55,000 acres. Railroad stations, Ossipee, Centre Ossipee, West Ossipee, on B. & M. railroad; banking town, Rochester or Wolfeborough. Population, 1880, 1,782; 1890, 1,630. Ratable polls, 415; assessed valuation of land and buildings, $374,114; mills and machinery, $11,000; stock in trade, $33,586; money on hand, at interest, or on deposit, $2,300; stock in banks or corporations in state, $1,100; valuation of assessed live stock (438 horses, 167 oxen, 527 cows, 199 other cattle, 279 sheep, 8 hogs), $45,984; total assessed valuation, $510,170. Taxes assessed, $13,265.35; rate of taxation, $2.60 on $100; surplus, $2,003.96. Agriculture is the principal occupation. The manufacture of excelsior, clothing, lumber, doors, sash, and blinds are important industries. Births, males, 3; females, 11; total, 14; marriages, 19; deaths, males, 21; females, 15; total, 36; death rate per 1,000, 22.08. Town has 12 public schools; number of scholars, 312; average daily attendance, 240; amount raised for support of schools, $2,899.50; from other sources, $548.55; total school revenue, $3,448.15. One free library, 300 volumes.

PELHAM.—Located in southeast part of Hillsborough county. Railroad station, Lowell, Mass., on B. & M. railroad; banking town, Lowell, Mass. Population, 1880, 848; 1890, 791. Ratable polls, 211; assessed valuation of land and buildings, $374,110; mills and machinery, $10,400; stock in trade, $16,895; money on hand, at interest, or on deposit, $18,235; stock in banks or corporations in state, $2,800; valuation of assessed live stock (300 horses, 6 oxen, 954 cows, 88 other cattle, 39 hogs), $40,555; total assessed valuation, $485,570. Taxes assessed, $4,855.70; rate of taxation, $1.00 on $100; surplus, $1,134.53. Agriculture is the principal occupation. The manufacture of lumber and granite are minor industries. Births, males, 5; females, 5; total, 10; marriages, 5; deaths, males, 8; females, 16; total, 24; death rate per 1,000, 30.34. Town has 5 public schools; number of scholars, 140; average daily attendance, 107; amount raised for support of schools, $906.50; from other sources, $437.27; total school revenue,

$1,343.77. One free library, 629 volumes; annual appropriation, $100.

Pembroke.—Located in southeast part of Merrimack county; area, 10,242 acres. Railroad station, Suncook, on C. & M. railroad; banking town, Concord. Population, 1880, 2,797; 1890, 3,172. Ratable polls, 736; assessed valuation of land and buildings, $703,566; mills and machinery, $227,500; stock in trade, $80,050; money on hand, at interest, or on deposit, $35,050; stock in banks or corporations in state, $4,500; valuation of assessed live stock (393 horses, 22 oxen, 522 cows, 155 other cattle, 133 sheep, 9 hogs), $46,790; total assessed valuation, $1,205,370. Taxes assessed, $12,053.70; rate of taxation, $1.00 on $100; net debt, $572.05. Agriculture is the principal occupation. The manufacture of print cloths, axe handles, brick, sash, blinds, etc., are important industries. Births, males, 58; females, 42; total, 100; marriages, 35; deaths, males, 31; females, 35; total, 66; death rate per 1,000, 21.12. Town has 10 public and 4 graded schools; number of scholars, 250; average daily attendance, 206; amount raised for support of schools, $2,185.51; from other sources, $1,110.71; total school revenue, $3,296.22. One subscription library, 1,500 volumes.

Peterborough.—Located in western part of Hillsborough county; area, 23,780 acres. Railroad stations, Peterborough, on Fitchburg and B. & M. railroads; a banking town. Population, 1880, 2,206; 1890, 2,507. Ratable polls, 583; assessed valuation of land and buildings, $861,519; mills and machinery, $146,200; stock in trade, $87,935; money on hand, at interest, or on deposit, $139,378; stock in banks or corporations in state, $51,125; valuation of assessed live stock (450 horses, 44 oxen, 559 cows, 272 other cattle, 107 sheep, 5 hogs), $54,540; total assessed valuation, $1,458,155. Taxes assessed, $16,768.78; rate of taxation, $1.15 on $100; net debt, 43,036.54. The manufacture of carriages, infants' shoes, woodenware, piano keys, trusses, piano stools, baskets, factory roller cloths, sheetings, drillings, and thermometers, are the principal industries. Births, males, 30; females, 18; total, 48; marriages, 18; deaths, males, 29; females, 17; total, 46; death rate per 1,000, 18.34. Town has 13 public, 8 graded, and 1 high

school; number of scholars, 449; average daily attendance, 291; amount raised for support of schools, $4,093.12; from other sources, $787.44; total school revenue, $4,870.56. One free library, 6,185 volumes; annual appropriation, $125.

PIERMONT.—Located in western part of Grafton county; area, 23,000 acres. Railroad station, Haverhill, on C. & M. railroad; banking town, Bradford, Vt. Population, 1880, 752; 1890, 709. Ratable polls, 190; assessed valuation of land and buildings, $639,010; mills and machinery, $8,100; stock in trade, $9,150; money on hand, at interest, or on deposit, $29,546; valuation of assessed live stock (366 horses, 60 oxen, 960 cows, 188 other cattle, 682 sheep, 64 hogs), $56,974; total assessed valuation, $361,980. Taxes assessed, $5,787.26; rate of taxation, $1.60 on $100; net debt, $1,625.13. Agriculture is the principal occupation. The manufacture of chairs and ladder stock, and scythe stones are the most important industries. Births, males, 3; females, 5; total, 8; marriages, 4; deaths, males, 3; females, 6; total, 9; death rate per 1,000, 12.69. Town has 7 public schools; number of scholars, 128; average daily attendance, 103; amount raised for support of schools, $614.50; from other sources, $1,842.54; total school revenue, $2,457.04.

PITTSBURG.—Located in northern part of Coös county; area, 200,000 acres. Railroad station, West Stewartstown, on Maine Central railroad; banking town, Colebrook. Population, 1880, 581; 1890, 669. Ratable polls, 162; assessed valuation of land and buildings, $238,127; stock in trade, $67,438; money on hand, at interest, or on deposit, $4,147; stock in banks or corporations in state, $2,000; valuation of assessed live stock (389 horses, 29 oxen, 438 cows, 157 other cattle, 1,529 sheep, 16 hogs), $34,493; total assessed valuation, $363,705. Taxes assessed, $5,927.44; rate of taxation, $1.63 on $100; net debt, $2,499.17. Agriculture is the principal occupation. The manufacture of lumber is also an important industry. Births, males, 2; female, 1; total, 3; marriages: 9; deaths, males, 3; females, 2; total, 5; death rate per 1,000, 7.47. Town has 8 public schools; number of scholars, 119; average daily attendance, 88; amount raised for support of schools, $766.50; from other sources, $1,355.22; total school revenue, $2,121.72.

PITTSFIELD.—Located in eastern part of Merrimack county; area, 14,927 acres; a station on Suncook Branch C. & M. railroad; a banking town. Population, 1880, 1,974; 1890, 2,605. Ratable polls, 517; assessed valuation of land and buildings, $817,615; mills and machinery, $91,500; stock in trade, $68,080; money on hand, at interest, or on deposit, $12,435; stock in banks or corporations in state, $10,100; valuation of assessed live stock (414 horses, 76 oxen, 494 cows, 122 other cattle, 243 sheep, 8 hogs), $62,105; total assessed valuation, $1,128,020. Taxes assessed, $21,425; rate of taxation, $1.90 on $100; net debt, $52,839.80. Manufacturing and mechanical pursuits are the principal occupations. The manufacture of unbleached cottons, boxes, boots and shoes, shoe heels, etc., are the principal industries. Births, males, 18; females 13; total, 31; marriages, 28; deaths, males, 17; females, 30; total, 47; death rate per 1,000, 18.80. Town has 12 public, 6 graded, and 1 high school; number of scholars, 409; average daily attendance, 287; amount raised for support of schools, $4,000; from other sources, $2,968.63; total school revenue, $6,968.63.

PLAINFIELD.—Located in northwest part of Sullivan county; area, improved land, 24,683 acres. Railroad station, Windsor, Vt.; banking town, Windsor, Vt. Population, 1880, 1,372; 1890, 1,173. Ratable polls, 281; assessed valuation of land and buildings, $390,574; mills and machinery, $3,500; stock in trade, $8,050; money on hand, at interest, or on deposit, $22,082; stock in banks or corporations in state, $8,000; valuation of assessed live stock (499 horses, 154 oxen, 739 cows, 469 other cattle, 4,048 sheep, 35 hogs), $68,760; total assessed valuation, $529,792. Taxes assessed, $7,734.96; rate of taxation, $1.46 on $100; net debt, $3,624.18. Agriculture is the principal occupation. But little manufacturing is done. Births, males, 5; females, 6; total, 11; marriages, 8; deaths, males, 7; females, 7; total, 14; death rate per 1,000, 11.93. Town has 13 public, 1 graded, and 1 high school; number of scholars, 221; average daily attendance, 156; amount raised for support of schools, $899.50; from other sources, $745.94; total school revenue, $1,645.44.

PLAISTOW.—Located in southern part of Rockingham county; area, 6,839 acres. Railroad stations, Plaistow and

Westville, on B. & M. railroad. Banking town, Haverhill, Mass. Population, 1880, 1,002; 1890, 1,085. Ratable polls, 259; assessed valuation of land and buildings, $253,-550; mills and machinery, $2,500; stock in trade, $19,350; money on hand, at interest, or on deposit, $2,500; valuation of assessed live stock (170 horses, 4 oxen, 221 cows, 2 other cattle, 32 hogs), $20,827; total assessed valuation, $325,-427. Taxes assessed, $4,484 58; rate of taxation, $1.38 on $100; net debt, $735.87. Agriculture is a minor occupation. The manufacture of bricks, boots, and shoes are the most important industries. Many people are employed in the boot and shoe factories at Haverhill, Mass. Births, males, 5; females, 5; total, 10; marriages, 8; deaths, males, 7; females, 4; total, 11; death rate per 1,000, 10.13. Town has 4 public schools; number of scholars, 165; average daily attendance, 73; amount raised for support of schools, $744.50; from other sources, $646.80; total school revenue, $1,391.30.

PLYMOUTH.—Located in southeast part of Grafton county; area, 16,256 acres. A station on C. & M. railroad; a banking town. Population, 1880, 1,719; 1890, 1,852. Ratable polls, 436; assessed valuation of land and buildings, $585,544; mills and machinery, $7,650; stock in trade, $54,600; stock in banks or corporations in state, $26,900; valuation of assessed live stock (397 horses, 75 oxen, 395 cows, 89 other cattle, 663 sheep, 32 hogs), $43,744; total assessed valuation, $764,888. Taxes assessed, $14,077.76; rate of taxation, $1.84 on $100; surplus, $927.35. Agriculture is the principal occupation. The manufacture of gloves and mittens is an important industry. Births, males, 13; females, 16; total, 29; marriages, 6; deaths, males, 16; females, 16; total, 32; death rate per 1,000, 17.27. Town has 11 public, 5 graded, and 1 high school; number of scholars, 392; average daily attendance, 281; amount raised for support of schools, $1,722.50; from other sources, $2,300.58; total school revenue, $4,023.08. One free library, 2,244 volumes.

PORTSMOUTH.—Located in eastern part of Rockingham county; area, 9,000 acres. A station on B. & M. and C. & M. railroads; a banking town. Population, 1880, 9,690; 1890, 9,827. Ratable polls, 2,750; assessed valuation of land

and buildings, $5,404,744; mills and machinery, $147,700; stock in trade, $630,214; money on hand, at interest, or on deposit, $197,907; stock in banks or corporations in state, $665,404; valuation of assessed live stock (960 horses, 49 oxen, 721 cows, 95 other cattle, 82 sheep, 40 hogs), $121,712; total assessed valuation, $7,833,490. Taxes assessed, $143,850; rate of taxation, $1.85 on $100; net debt, $479,861.30. Manufacturing, mechanical, and trade pursuits are the principal occupations. The manufacture of boots and shoes, malt and spirituous liquors, cigars, overalls, confectionery, soap, clothing, cod liver oil, drain pipe, shoe blacking, box toes, machinery, sails, and awnings are a few of the many manufacturing industries. Births, males, 91; females, 68; total, 159; marriages, 192; deaths, males, 106; females, 104; total, 210; death rate per 1,000, 21.36. Town has 28 public, 25 graded, and 1 high school; number of scholars, 1,309; average daily attendance, 1,022; amount raised for support of schools, $38,000; from other sources, $4,028.14; total school revenue, $42,028.14. One free library, 9,585 volumes; annual appropriation, $1,200.

Randolph.—Located in southern part of Coös county; area, 36,680 acres. A station on C. & M. railroad; banking town, Berlin Falls or Lancaster. Population, 1880, 203; 1890, 137. Ratable polls, 36; assessed valuation of land and buildings, 4$9,744; mills and machinery, $1,000; stock in trade, $3,300; stock in banks or corporations in state, $2,000; valuation of assessed live stock (52 horses, 38 oxen, 63 cows, 20 other cattle, 98 sheep), $5,656; total assessed valuation, $63,300. Taxes assessed, $1,552.80; rate of taxation, $2.45 on $100; net debt, $645.73. Agriculture is the principal occupation. The manufacture of lumber is the most important mechanical industry. Births, males, 2; total, 2; marriage, 1; deaths, males, 2; females, 4; total, 6; death rate per 1,000, 4.37. Town has 3 public schools; number of scholars, 17; average daily attendance, 10; amount raised for support of schools, $391; from other sources, $51.72; total school revenue, $442.72.

Raymond.—Located in northwesterly part of Rockingham county; area, 16,317 acres. A station on C. &M. railroad; banking town, Manchester. Population, 1880, 1,053;

1890, 1,131. Ratable polls, 317; assessed valuation of land and buildings, $278,870; mills and machinery, $5,500; stock in trade, 16,974; money on hand, at interest, or on deposit, $792; stock in banks or corporations in state, $300; valuation of assessed live stock (369 horses, 52 oxen, 312 cows, 98 other cattle, 188 sheep, 3 hogs), $29,338; total assessed valuation, $363,474; taxes assessed, $5,489.-83; rate of taxation, $1.51 on $100; net debt, $22,530.34. Agriculture is the principal occupation. The manufacture of boots, shoes, and slippers, and lumber and boxes are important industries. Births, males, 18; females, 10; total, 28; marriages, 17; deaths, males, 11; females, 10; total, 21; death rate per 1,000, 18.56. Town has 10 public, 1 graded, and 1 high school; number of scholars, 231; average daily attendance, 141; amount raised for support of schools, $1,500; from other sources, $41.15; total school revenue, $1,541.15. One free library, 140 volumes; annual appropriation, $25.

RICHMOND.—Located in southern part of Cheshire county: area, 22,725 acres. Railroad stations, Fitzwilliam on Fitchburg railroad, and Winchester on B. & M. railroad; banking town, Keene or Winchester. Population, 1880, 669; 1890, 476. Ratable polls, 122; assessed valuation of land and buildings, $158,205; mills and machinery, $9,500; stock in trade, $16,860; money on hand, at interest, or on deposit, $4,755; stock in banks or corporations in state, $500; valuation of assessed live stock (178 horses, 20 oxen, 224 cows, 49 other cattle, 163 sheep, 5 hogs), $18,052; total assessed valuation, $220,372. Taxes assessed, $3,085.04; rate of taxation, $1.40 on $100; surplus, $747.47. Agriculture is the principal occupation. The manufacture of lumber and pail stock are minor industries. Births, males, 8; females, 3; total, 11; marriage, 1; deaths, males, 9; females, 5; total, 14; death rate per 1,000, 29.41. Town has 6 public schools; number of scholars, 96; average daily attendance, 69; amount raised for support of schools, $1,065.50; from other sources, $265.23; total school revenue, $1,330.73. One free library, 157 volumes; annual appropriation, $40.

RINDGE.—Located in southeast part of Cheshire county; area, 23,838 acres. Railroad station, West Rindge, on

Fitchburg railroad; banking town, East Jaffrey. Population, 1880, 934; 1890, 996. Ratable polls, 245; assessed valuation of land and buildings, $158,205; mills and machinery, $9,500; stock in trade, $16,860; money on hand, at interest, or on deposit, $4,755; stock in banks or corporations in state, $6,800; valuation of assessed live stock (289 horses, 59 oxen, 457 cows, 119 other cattle, 82 sheep, 52 hogs), $37,829; total assessed valuation, $220,372. Taxes assessed, $3,085.04; rate of taxation, $1.40 on $100; surplus, $1,262.92. Agriculture is the principal occupation. The manufacture of toys and wooden ware, brooms, lumber, and boxes are important industries. Births, males, 4; females, 14; total, 18; marriages, 12; deaths, males, 13; females, 7; total, 20; death rate per 1,000, 20.08. Town has 8 public schools; number of scholars, 160; average daily attendance, 120; amount raised for support of schools, $1,800; from other sources, $186.88; total school revenue, $1,986.88. One free library, 1,400 volumes.

Rochester.—Located in eastern part of Strafford county; area, 22,000 acres. A station on B. & M. railroad; a banking town. Population, 1880, 5,784; 1890, 7,396. Ratable polls, 2,223; assessed valuation of land and buildings, $2,442,412; mills and machinery, $315,330; stock in trade, $462,850; money on hand, at interest, or on deposit, $18,006; stock in banks or corporations in state, $94,100; valuation of assessed live stock (1,069 horses, 95 oxen, 1,008 cows, 148 other cattle, 200 sheep, 15 hogs), $101,048; total assessed valuation, $3,660,656. Taxes assessed, $69,525; rate of taxation, $1.90 on $100; net debt, $10,734.22. The manufacture of boots and shoes, flannels and ladies' suitings, ladies' woolens, tweeds, and blankets, lumber, cigars, brick, paper and shoe boxes, leather, etc., are the principal industries. Many people are engaged in agricultural pursuits. Births, males, 65; females, 69; total, 134; marriages, 120; deaths, males, 62; females, 72; total, 134; death rate per 1,000, 18.11. Town has 31 public, 19 graded, and 1 high school; number of scholars, 1,110; average daily attendance, 848; amount raised for support of schools, $16,531.08; from other sources, $328.63; total school revenue, $16,859.71. One free library, 1,300 volumes; annual appropriation, $150.

ROLLINSFORD.—Located in southeast part of Strafford county; area, improved land, 2,813 acres. Railroad stations, Rollinsford and Salmon Falls, on B. & M. railroad; a banking town (Salmon Falls, P. O.). Population, 1880, 1,712; 1890, 2,003. Ratable polls, 449; assessed valuation of land and buildings, $571,463; mills and machinery, $404,334; stock in trade, $64,933; money on hand, at interest, or on deposit, $8,080; stock in banks or corporations in state, $26,500; valuation of assessed live stock (209 horses, 12 oxen, 355 cows, 37 other cattle, 72 sheep, 1 hog), $26,836; total assessed valuation, $1,183,721. Taxes assessed, $14,025.11; rate of taxation, $1.18 on $100; net debt, $10,734.22. The manufacture of sheetings and print cloths and machinery and castings are the principal industries. Agriculture is a minor occupation. Births, males, 23; females, 25; total, 48; marriages, 25; deaths, males, 23; females, 24; total, 47; death rate per 1,000, 23.42. Town has 8 public, 4 graded, and 1 high school; number of scholars, 277; average daily attendance, 241; amount raised for support of schools, $2,275; from other sources, $2,378.20; total school revenue, $4,653.20.

ROXBURY.—Located in central part of Cheshire county; area, 6,000 acres. Railroad station, Keene, on B. & M. and Fitchburg railroads; banking town, Keene. Population, 1880, 126; 1890, 129. Ratable polls, 34; assessed valuation of land and buildings, $58,064; money on hand, at interest, or on deposit, $950; valuation of assessed live stock (51 horses, 21 oxen, 79 cows, 27 other cattle, 246 sheep, 2 hogs), $6,448; total assessed valuation, $69,012. Taxes assessed, $717.72; rate of taxation, $1.04 on $100; surplus, $385. Agriculture is the principal occupation. Births, females, 1; total, 1; no marriages; deaths, males, 3; females, 3; total, 6; death rate per 1,000, 46.51. Town has 1 public school; number of scholars, 19; average daily attendance, 14; amount raised for support of schools, $175; from other sources, $39.04; total school revenue, $214.04.

RUMNEY.—Located in central part of Grafton county; area, 22,574 acres. Railroad stations, Rumney, West Rumney, and Quincy, on C. & M. railroad; banking town, Plymouth. Population, 1880, 1,050; 1890, 916. Ratable polls, 258; assessed valuation of land and buildings, $209,-

895; mills and machinery, $6,950; stock in trade, $14,300; money on hand, at interest, or on deposit, $4,964; stock in banks or corporations in state, $1,000; valuation of assessed live stock (331 horses, 94 oxen, 425 cows, 106 other cattle, 585 sheep, 24 hogs), $30,292; total assessed valuation, $293,551. Taxes assessed, $7,338.78; rate of taxation, $2.50 on $100; net debt, $2,198.05. Agriculture is the principal occupation. The manufacture of truss pads and crutches, lumber and ladders, gloves, brick, and granite are the principal industries. Births, males, 7; females, 4; total, 11; marriages, 15; deaths, males, 12; females, 8; total, 20; death rate per 1,000, 21.11. Town has 9 public and 1 graded school; number of scholars, 233; average daily attendance, 199; amount raised for support of schools, $1,070.50; from other sources, $761.84; total school revenue, $1,832.34. One free library, 1,800 volumes; annual appropriation, $25.

Rye.—Located in eastern part of Rockingham county; area, 8,500 acres. Railroad stations, North Hampton and Greenland on B. & M. railroad; banking town, Portsmouth. Population, 1880, 1,111; 1890, 978. Ratable polls, 257; assessed valuation of land and buildings, $512,894; mills and machinery, $500; stock in trade, $1,800; money on hand, at interest, or on deposit, $1,200; stock in banks or corporations in state, $8,566; valuation of assessed live stock (345 horses, 8 oxen, 558 cows, 59 other cattle, 22 sheep), $33,769; total assessed valuation, $589,675. Taxes assessed, $7,318.61; rate of taxation, $1.24 on $100; net debt, $723.84. Agriculture and care of summer boarders is the principal occupation. Births, males, 7; females, 3; total, 10; marriages, 7; deaths, males, 4; females, 10; total, 14; death rate per 1,000, 14.31. Town has 4 public schools; number of scholars, 138; average daily attendance, 104; amount raised for support of schools, $1,600; from other sources, $193.44; total school revenue, $1,793.44.

Salem.—Located in southwest part of Rockingham county; area, 15,600 acres. Railroad station, Salem Depot, on B. & M. railroad; banking town, Lawrence or Methuen, Mass. Population, 1880, 1,809; 1890, 1,805. Ratable polls, 422; assessed valuation of land and buildings,

$513,258; mills and machinery, $12,800; stock in trade, $26,470; money on hand, at interest, or on deposit, $5,500; stock in banks or corporations in state, $1,000; valuation of assessed live stock (346 horses, 10 oxen, 600 cows, 56 other cattle, 60 sheep, 3 hogs), $38,480; total assessed valuation, $641,230. Taxes assessed, $10,900.86; rate of taxation, $1.70 on 100; net debt, $12,117.94. Agriculture is the principal occupation. The manufacture of hosiery, yarns, artificial leather, boots, shoes, slippers, heels, frockings, and flannels are the largest industries. Births, males, 17; females, 8; total, 25; marriages, 6; deaths, males, 30; females, 12; total, 42; death rate per 1,000, 23.26. Town has 11 public and 2 graded schools; number of scholars, 245; average daily attendance, 198; amount raised for support of schools, $1,238; from other sources, $1,885.31; total school revenue, $3,123.31.

SALISBURY.—Located in central part of Merrimack county; area, 26,000 acres. Railroad station, North Boscawen, on B. & M. railroad; banking town, Concord. Population, 1880, 795; 1890, 655. Ratable polls, 173; assessed valuation of land and buildings, $230,596; mills and machinery, $3,700; stock in trade, $3,550; money on hand, at interest, or on deposit, $4,400; stock in banks or corporations in state, $400; valuation of assessed live stock (235 horses, 111 oxen, 405 cows, 132 other cattle, 1,476 sheep, 1 hog) $35,334; total assessed valuation, $295,462. Taxes assessed, $5,761.50; rate of taxation, $1.95 on $100; net debt, $2,347.93. Agriculture is the principal occupation. The manufacture of pumps, drag rakes, and shingles are minor industries. Births, females, 8: total, 8; marriages, 4; deaths, males, 7; females, 6; total, 13; death rate per 1,000, 19.84. Town has six public schools; number of scholars, 108; average daily attendance, 83; amount raised for support of schools, $1,461.56; from other sources, $904.02; total school revenue, $2,365.58.

SANBORNTON.—Located in western part of Belknap county; area, improved land, 20,925 acres. Railroad station, Tilton, on C. & M. railroad; banking town, Tilton. Population, 1880, 1,192; 1890, 1,027; ratable polls, 240; assessed valuation of land and buildings, $270,920; mills and machinery, $1,000; stock in trade, $3,790; money on

hand, at interest, or on deposit, $3,600; stock in banks or corporations in state, $1,400: valuation of assessed live stock (373 horses, 134 oxen, 679 cows, 293 other cattle, 362 sheep, 20 hogs), $51,568. Total assessed valuation, $357,020; taxes assessed, $4,855.47; rate of taxation, $1.36 on $100; surplus, $3,609.71. Agriculture is the principal occupation. Births, males, 5; females, 4; total, 9; marriages, 6; deaths, males, 8; females, 15; total, 23; death rate per 1,000, 22.39. Town has 12 public schools; number of scholars, 179; average daily attendance, 144; amount raised for suport of schools, $1,340; from other sources, $336.74; total school revenue, $1,676.74.

SANDOWN.—Located in central part of Rockingham county; area, 8,522 acres. Railroad station, Sandown, on B. & M. railroad; banking town, Derry Depot or Nashua. Population, 1880, 500; 1890, 475. Ratable polls, 123; assessed valuation of land and buildings, $130,335; mills and machinery, $4,140; stock in trade, $2,100; money on hand, at interest, or on deposit, $1,000; stock in banks or corporations in state, $2,000; valuation of assessed live stock (106 horses, 54 oxen, 168 cows, 21 other cattle, 30 sheep, 7 hogs), $11,621; total assessed valuation, $168,526. Taxes assessed, $2,990.87; rate of taxation, $1.77 on $100; surplus, $705.09. Agriculture is the principal occupation. The manufacture of staves, tubs, and pails is an important industry. Births, males, 3; females, 2; total, 5; marriages, 1; deaths, males, 3; females, 4; total, 7; death rate per 1,000, 14.56. Town has 4 public schools; number of scholars, 80; average daily attendance, 57; amount raised for support of schools, $330.50; from other sources, $105.25; total school revenue, $435.75. One free library; annual appropriation, $50.

SANDWICH.—Located in western part of Carroll county; area, 64,000 acres. Railroad stations, West Ossipee on B. & M. railroad; Meredith on C. & M. railroad; banking town, Wolfeborough. Population, 1880, 1,701; 1890, 1,303. Ratable polls, 320; assessed valuation of land and buildings, $335,472; mills and machinery, $3,910; stock in trade, $12,610; money on hand, at interest, or on deposit, $15,190; valuation of assessed live stock (447 horses, 239 oxen, 646 cows, 343 other cattle, 745 sheep, 7 hogs), $58,-

685; total assessed valuation, $459,107. Taxes assessed, $12,485.26; rate of taxation, $2.72 on $100; net debt, $24,124.91. Agriculture and entertainment of summer visitors are the principal occupations. The manufacture of agricultural implements, spool stock, tinware, etc., are minor industries. Births, males, 8; females, 11; total, 19; marriages, 11; deaths, males, 14; females, 15; total, 29; death rate per 1,000, 22.25. Town has 11 public, 2 graded, and 1 high school; number of scholars, 214; average daily attendance, 175; amount raised for support of schools, $1,071.42; from other sources, $620.42; total school revenue, $1,691.84. One subscription library, 814 volumes.

SEABROOK.—Located in southeast part of Rockingham county; area, 3,320 acres. Railroad station, Seabrook, on B. & M. railroad; banking town, Newburyport, Mass. Population, 1880, 1,745; 1890, 1,672. Ratable polls, 392; assessed valuation of land and buildings, $199,914; stock in trade, $3,930; money on hand, at interest, or on deposit, $1,875; valuation of assessed live stock (161 horses, 16 oxen, 160 cows, 10 other cattle), $10,667; total assessed valuation, $255,271. Taxes assessed, $6,239.59; rate of taxation, $2.44 on $100; net debt, $6,459.37. Agriculture is the principal occupation. The manufacture of shoes and slippers is a minor industry. Births, males, 18; females, 20; total, 38; marriages, 15; deaths, males, 23; females, 18; total, 41; death rate per 1,000, 25.11. Town has 6 public and 4 graded schools; number of scholars, 239; average daily attendance, 181; amount raised for support of schools, $1,350; from other sources, $670.38; total school revenue, $2,020.38.

SHARON.—Located in southwest part of Hillsborough county; area, 10,000 acres. Railroad stations, East Jaffrey and Peterborough on Peterborough and Hillsborough branch Fitchburg railroad; banking town, Peterborough. Population, 1880, 203; 1890, 137. Ratable polls, 36; assessed valuation of land and buildings, $57,245; mills and machinery, $900; stock in trade, $200; valuation of assessed live stock (62 horses, 13 oxen, 67 cows, 20 other cattle, 41 sheep, 1 hog), $5,948; total assessed valuation, $67,893. Taxes assessed, $1,132.25; rate of taxation, $1.66 on 100; surplus, $398.05. Agriculture is the princi-

pal occupation. The manufacture of boxes is a minor industry. Births, males, 3; females, 1; total, 4; no marriages; deaths, females, 1; total, 1; death rate per 1,000, 7.29. Town has 3 public schools; number of scholars, 24; average daily attendance, 9; amount raised for support of schools, $150; from other sources, $26.88; total school revenue, $176.88.

SHELBURNE.—Located in southeast part of Coös county; area, 18,140 acres. A railroad station on Grand Trunk railway; banking town, Lancaster. Population, 1880, 252; 1890, 326. Ratable polls, 91; assessed valuation of land and buildings, $98,350; mills and machinery, $2,550; stock in trade, $3,180; money on hand, at interest, or on deposit, $1,220; stock in banks or corporations in state, $400; valuation of assessed live stock (145 horses, 10 oxen, 127 cows, 39 other cattle, 139 sheep, 22 hogs), $11,438; total assessed valuation, $127,748. Taxes assessed, $2,018.25; rate of taxation, $1.58 on $100; surplus, $504.96. Agriculture is the principal occupation. The manufacture of bobbins is a minor industry. Births, males, 9; females, 5; total, 14; marriages, 4; deaths, males, 1; total, 1; death rate per 1,000, 2.97. Town has 4 public schools; number of scholars, 64; average daily attendance, 32; amount raised for support of schools, $850; from other sources, $107.52; total school revenue, $957.52.

SOMERSWORTH.—Located in southeast part of Strafford county; area, improved land, 2,294 acres. Railroad station, Great Falls, on northern division B. & M. railroad; a banking town. Population, 1880, 5,586; 1890, 6,207. Ratable polls, 1,393; assessed valuation of land and buildings, $1,391,342; mills and machinery, $915,000; stock in trade, $243,525; money on hand, at interest, or on deposit, $560; stock in banks or corporations in state, $156,200; valuation of assessed live stock (394 horses, 10 oxen, 229 cows, 25 sheep), $35,466; total assessed valuation, $2,942,196. Taxes assessed, $56,195.94; rate of taxation, $1.91 on $100; net debt, $76,700. The manufacture of cigars, carriages, cotton goods, cassimeres and suitings, boots, shoes, doors and blinds, soap, etc., are the principal industries. Births, males, 105; females, 90; total, 195; marriages, 80; deaths, males, 61; females, 76; total, 137; death rate per 1,000,

22.07. Town has 17 public, 16 graded, and 1 high school; number of scholars, 907; average daily attendance, 848; amount raised for support of schools, $6,500; from other sources, $10,359.71; total school revenue, $16,859.71. One subscription library, 10,000 volumes.

SOUTH HAMPTON.—Located in southern part of Rockingham county; area, improved land, 3,899 acres. Railway stations, Powow River and Amesbury, Mass, on B. & M. railroad; banking town, Amesbury, Mass. Population, 1880, 383; 1890, 370. Ratable polls, 88; assessed valuation of land and buildings, $187,168; mills and machinery, $2,250; stock in trade, $8,150; money on hand, at interest, or on deposit, $1,165; valuation of assessed live stock (119 horses, 20 oxen, 174 cows, 32 other cattle, 18 sheep, 6 hogs), $13,052; total assessed valuation, $221,600. Taxes assessed, $3,257.52; rate of taxation, $1.47 on $100; net debt, $1,457.79. Agriculture is the principal occupation. Births, males, 18; females, 20; total, 38; marriages, 4; deaths, males, 4; females, 5; total, 9; death rate per 1,000, 24.32. Town has 3 public schools; number of scholars, 63; average daily attendance, 37; amount raised for support of schools, $500; from other sources, $247.20; total school revenue, $747.20. One free library, 481 volumes; annual appropriation, $50.

SOUTH NEWMARKET.—Located in northeast part of Rockingham county; area, 6,000 acres. A railroad station on B. & M. railroad; banking town, Newmarket. Population, 1880, 829; 1890, 855. Ratable polls, 219; assessed valuation of land and buildings, $280,026; mills and machinery, $21,208; stock in trade, $25,100; money on hand, at interest, or on deposit, $10,088; stock in banks or corporations in state, $6,066; valuation of assessed live stock (106 horses, 19 oxen, 109 cows, 26 other cattle, 56 sheep), $12,670; total assessed valuation, $545,236. Taxes assessed, $5,452.36; rate of taxation, $1.00 on $100; net debt, $129.46. Agriculture is an important industry. The manufacture of machinery and iron and brass castings, engines, iron pipe, etc., are the principal industries. Births, males, 4; females, 6; total, 10; marriages, 4; deaths, males, 8; females, 10; total, 18; death rate per 1,000, 21.05. Town has 4 public and 3 graded schools; number

of scholars, 115; average daily attendance, 84; amount raised for support of schools, $833; from other sources, $729.12; total school revenue, $1,562.12.

Springfield.—Located in northeast part of Sullivan county; area, 28,300 acres. Railroad station, West Andover, on Concord division B. & M. railroad; banking town, Newport. Population, 1880, 732; 1890, 540. Ratable polls, 132; assessed valuation of land and buildings, $110,829; mills and machinery, $400; stock in trade, $2,300; money on hand, at interest, or on deposit, $1,910; stock in banks or corporations in state, $700; valuation of assessed live stock (213 horses, 123 oxen, 245 cows, 123 other cattle, 1,088 sheep, 10 hogs), $25,308; total assessed valuation, $154,847. Taxes assessed, $4,032.84; rate of taxation, $2.60 on $100; net debt, $13,077.29. Agriculture is the principal occupation. The manufacture of lumber and shingles are minor industries. Births, males, 2; females, 2; total, 4; marriages, 4; deaths, males, 10; females, 7; total, 17; death rate per 1,000, 31.48. Town has 8 public schools; number of scholars, 107; average daily attendance, 103; amount raised for support of schools, $617; from other sources, $174.87; total school revenue, $791.87.

Stark.—Located in central part of Coös county; area, 20,000 acres. Railroad stations, Stark and Percy, on Grand Trunk railway; banking town, Lancaster, Berlin Falls, or Portland, Me. Population, 1880, 690; 1890, 703. Ratable polls, 225; assessed valuation of land and buildings, $171,750; mills and machinery, $29,000; stock in trade, 31,224; money on hand, at interest, or on deposit, $12,284; valuation of assessed live stock (247 horses, 28 oxen, 255 cows, 102 other cattle, 304 sheep, 1 hog), $24,030; total assessed valuation, $290,588. Taxes assessed, $4,358.82; rate of taxation, $1.50 on $100; net debt, $1,776.90. Agriculture is the principal occupation. The manufacture of lumber is a very important industry. Births, males, 9; females, 5; total, 14; marriages, 11; deaths, males, 9; females, 7; total, 16; death rate per 1,000, 22.75. Town has 8 public, 1 graded, and 1 high school; number of scholars, 170; average daily attendance, 131; amount raised for support of schools, $1,046.99;

from other sources, $437.56; total school revenue, $1,484.55. One free library, 1,452 volumes; annual appropriation, $50.

STEWARTSTOWN.—Located in northwest part of Coös county; area, 23,040 acres. Railroad station, West Stewartson, on Maine Central railroad; banking town, Colebrook. Population, 1880, 958; 1890, 1,002. Ratable polls, 285; assessed valuation of land and buildings, $243,197; mills and machinery, $3,200; stock in trade, $17,697; money on hand, at interest, or on deposit, $20,774; stock in banks or corporations in state, $2,200; valuation of assessed live stock (472 horses, 45 oxen, 567 cows, 279 other cattle, 1,769 sheep, 60 hogs), $43,566; total assessed valuation, $359,899. Taxes assessed, $4,859.69; rate of taxation, $1.35 on $100; net debt, $5,291.96. Agriculture is the principal occupation. The manufacture of bedsteads, starch, sash, doors, blinds, clapboards, shingles, and lumber are important industries. Births, males, 7; females, 5; total, 12; marriages, 6; deaths, males, 11; females, 14; total, 25; death rate per 1,000, 24.95. Town has 13 public schools; number of scholars, 226; average daily attendance, 136; amount raised for support of schools, $1,007.50; from other sources, $536.85; total school revenue, $1,544.35.

STODDARD.—Located in northeast part of Cheshire county; area, 29,000 acres. Railroad stations, Keene, on B. & M. and Fitchburg railroads; Hancock Junction, on B. & M. railroad; banking town, Hillsborough or Keene, Population, 1880, 553; 1890, 400. Ratable polls, 102; assessed valuation of land and buildings, $134,322; mills and machinery, $3,800; stock in trade, $2,500; money on hand, at interest, or on deposit, $2,724; stock in banks or corporations in state, $3,000; valuation of assessed live stock (96 horses, 51 oxen, 160 cows, 76 other cattle, 444 sheep), $13,474; total assessed valuation, $170,020. Taxes assessed, $2,720.37; rate of taxation, $1.60 on $100; net debt, $1,983.80. Agriculture is the principal occupation. The manufacture of lumber and wooden goods are minor industries. Births, males, 2; females, 1; total, 3; marriages, 4; deaths, males, 6; females, 5; total, 11; death rate per 1,000, 27.50. Town has 3 public schools; number of

scholars, 76; average daily attendance, 47; amount raised for support of schools, $371.50; from other sources, $175.30; total school revenue, $546.80.

STRAFFORD.—Located in western part of Strafford county; area, 29,000 acres. Railroad station, Center Barnstead, on Suncook Valley branch C. & M. railroad; banking town, Dover. Population, 1880, 1,531; 1890, 1,304. Ratable polls, 314; assessed valuation of land and buildings, $383,118; mills and machinery, $1,650; stock in trade, $9,715; money on hand, at interest, or on deposit, $1,815; stock in banks or corporations in state, $2,000; valuation of assessed live stock (369 horses, 146 oxen, 682 cows, 324 other cattle, 519 sheep, 2 hogs), $49,629; total assessed valuation, $479,825. Taxes assessed, $8,829.28; rate of taxation, $1.84 on $100; net debt, $667.59. Agriculture is the principal occupation. The manufacture of shoes, wagons, lumber, and boxes are minor industries. Births, males, 7; females, 6; total, 13; marriages, 6; deaths, males, 16; females, 10; total, 26; death rate per 1,000, 19.93. Town has 13 public schools; number of scholars, 248; average daily attendance, 205; amount raised for support of schools, $1,364.50; from other sources, $547.65; total school revenue, $1,912.15.

STRATFORD.—Located in western part of Coös county; area, improved land, 6,354 acres. Railroad stations, Masons, and North Stratford, on Grand Trunk and Maine Central railroads; banking town, Lancaster. Population, 1880, 1,016; 1890, 1,128. Ratable polls, 266; assessed valuation of land and buildings, $258,940; mills and machinery, $5,416; stock in trade, $40,670; money on hand, at interest, or on deposit, $9,773; stock in banks or corporations in state, $25,200; valuation of assessed live stock (469 horses, 20 oxen, 308 cows, 117 other cattle, 647 sheep, 33 hogs), $32,118; total assessed valuation, $400,400. Taxes assessed, $5,290.61; rate of taxation, $1.32 on $100; surplus, $278.70. Agriculture is the principal occupation. The manufacture of lumber is an important industry. Births, males, 21; females, 12; total, 33; marriages, 12; deaths, males, 4; females, 11; total, 15; death rate per 1,000, 13.29. Town has 13 public and 2 graded schools; number of scholars, 298; average daily attendance, 182;

amount raised for support of schools, $1,083; from other sources, $1,510.37; total school revenue, $2,593.37.

STRATHAM.—Located in eastern part of Rockingham county; area, 10,120 acres. Railroad stations, Stratham, on C. & M. railroad; South Newmarket and Exeter, on B. & M. railroad; banking town, Exeter or Portsmouth. Population, 1880, 720; 1890, 680. Ratable polls, 159; assessed valuation of land and buildings, $390,076; mills and machinery, $3,027; stock in trade, $22,915; money on hand, at interest, or on deposit, $35,189; stock in banks or corporations in state, $19,228; valuation of assessed live stock (315 horses, 26 oxen, 586 cows, 58 other cattle, 136 sheep), $39,941; total assessed valuation, $545,236. Taxes assessed, $5,452.36; rate of taxation, $1.00 on $100; surplus, $21.29. Agriculture is the principal occupation. Births, males, 6; females, 3; total, 9; marriages, 3; deaths, males, 7; females, 10; total, 17; death rate per 1,000, 25.00. Town has 4 public schools; number of scholars, 122; average daily attendance, 94; amount raised for support of schools, $917; from other sources, $460; total school revenue, $1,377. One subscription library, 509 volumes; annual appropriation, $100.

SULLIVAN.—Located in central part of Cheshire county; area, 15,000 acres. Railroad station, Keene, on Fitchburg railroad; banking town, Keene. Population, 1880, 382; 1890, 337. Ratable polls, 73; assessed valuation of land and buildings, $92,550; mills and machinery, $4,400; stock in trade, $1,566; money on hand, at interest, or on deposit, $4,568; stock in banks or corporations in state, $8,300; valuation of assessed live stock (122 horses, 30 oxen, 260 cows, 65 other cattle, 416 sheep, 4 hogs), $19,546; total assessed valuation, $139,170. Taxes assessed, $2,677.14; rate of taxation, $1.92 on $100; net debt, $896.38. Agriculture is the principal occupation. The manufacture of lumber, chairs, and bucket hoops are minor industries. Births, males, 2; females, 1; total, 3; no marriages; deaths, males, 1; females, 3; total, 4; death rate per 1,000, 11.86. Town has 4 public schools; number of scholars, 96; average daily attendance, 92; amount raised for support of schools, $700; from other sources, $252.21; total school revenue, $952.21. One subscription library, 247 volumes.

SUNAPEE.—Located in eastern part of Sullivan county; area, 15,000 acres. Railroad station, Sunapee, on B. & M. railroad; banking town, Newport. Population, 1880, 895; 1890, 900. Ratable polls, 237; assessed valuation of land and buildings, $280,840; stock in trade, $8,600; money on hand, at interest, or on deposit, $3,960; stock in banks or corporations in state, $8,680; valuation of assessed live stock (258 horses, 86 oxen, 313 cows, 90 other cattle, 344 sheep, 6 hogs), $28,140; total assessed valuation, $358,516. Taxes assessed, $5,604.70; rate of taxation, $1.56 on $100; net debt, $10,383.27. Agriculture is the principal occupation. The manufacture of rakes, forks, hoe handles, hames, clapboards, shingles, pocket books, granite, wood pulp, and paper, are important industries. Births, males, 9; females, 10; total, 19; marriages, 4; deaths, males, 8; females, 7; total, 15; death rate per 1,000, 16.66. Town has 9 public, 3 graded, and 1 high school; number of scholars, 153; average daily attendance, 144; amount raised for support of schools, $563.50; from other sources, $238.37; total school revenue, $791.87.

SURRY.—Located in northwest part of Cheshire county; area, 12,212 acres. Railroad station, Keene, on Fitchburg and B. & M. railroads; banking town, Keene. Population, 1880, 326; 1890, 270. Ratable polls, 73; assessed valuation of land and buildings, $114,910; mills and machinery, $1,900; stock in trade, $250; money on hand, at interest, or on deposit, $6,734; stock in banks or corporations in state, $500; valuation of assessed live stock (157 horses, 26 oxen, 230 cows, 64 other cattle, 376 sheep, 12 hogs), $19,283; total assessed valuation, $151,480. Taxes assessed, $1,272.20; rate of taxation, $1.50 on $100; surplus, $1,025. Agriculture is the principal occupation. Births, males, 1; females, 5; total, 6; no marriages; deaths, males, 3; females, 3; total, 6; death rate per 1,000, 22.22. Town has 4 public schools; number of scholars, 60; average daily attendance, 47; amount raised for support of schools, $432.50; from other sources, $170.59; total school revenue, $603.09. One free library, 2,001 volumes; annual appropriation, $61.70.

SUTTON.—Located in western part of Merrimack county; area, 24,300 acres. Railroad station, Bradford, on B. &

M. railroad; banking town, Concord. Population, 1880, 993; 1890, 849. Ratable polls, 215; assessed valuation of land and buildings, $250,542; mills and machinery, $600; stock in trade, $10,326; money on hand, at interest, or on deposit, $23,300; stock in banks or corporations in state, $1,200; valuation of assessed live stock (266 horses, 126 oxen, 486 cows, 408 other cattle, 962 sheep, 26 hogs), $42,676; total assessed valuation, $351,102. Taxes assessed, $5,196.30; rate of taxation, $1.48 on $100; surplus, $1,980.49. Agriculture is the principal occupation. The manufacture of lumber, shingles, and boxes are minor industries. Births, males, 5; females, 2; total, 7; marriages, 6; deaths, males, 7; females, 10; total, 17; death rate per 1,000, 20.02. Town has 9 public schools; number of scholars, 140; average daily attendance, 113; amount raised for support of schools, $735; from other sources, $492.79; total school revenue, $1,227.79. One free library, 440 volumes.

SWANZEY.—Located in southerly part of Cheshire county; area, 28,057 acres. Railroad stations, West Swanzey and Westport, on B. & M. railroad; banking town, Keene. Population, 1880, 1,661; 1890, 1,600. Ratable polls, 428; assessed valuation of land and buildings, $521,365; mills and machinery, $54,200; stock in trade, $40,000; money on hand, at interest, or on deposit, $19,895; stock in banks or corporations in state, $3,100; valuation of assessed live stock (425 horses, 39 oxen, 552 cows, 164 other cattle, 561 sheep, 5 hogs), $44,450; total assessed valuation, $1,866.13. Taxes assessed, $7,658.91; rate of taxation, $1.05 on $100; net debt, $729.42. Agriculture is the principal occupation. The manufacture of flannels, blankets, wooden ware, packing boxes, pails, buckets, tables, axe helves, and whip stocks, are the principal industries. Births, males, 16; females, 15; total, 31; marriages, 15; deaths, males, 19; females, 20; total, 39; death rate per 1,000, 24.37. Town has 11 public and 3 graded schools; number of scholars, 343; average daily attendance, 252; amount raised for support of schools, $2,500; from other sources, $957.28; total school revenue, $3,457.28. One free library, 2,111 volumes.

TAMWORTH.—Located in central part of Carroll county;

area, 28,917 acres. Railroad station, West Ossipee, on B. & M. railroad; banking town, Wolfeborough. Population, 1880, 1,274; 1890, 1,025. Ratable polls, 283; assessed valuation of land and buildings, $266,610; mills and machinery, $5,078; stock in trade, $17,900; money on hand, at interest, or on deposit, $15,200; valuation of assessed live stock (354 horses, 123 oxen, 381 cows, 139 other cattle, 227 sheep, 4 hogs), $38,370; total assessed valuation, 373,642. Taxes assessed, $8,658; rate of taxation, $2.32 on $100; net debt, $15.96. Agriculture is the principal occupation. The manufacture of rakes, bedsteads, lumber, and boxes are minor industries. Births, males, 6; females, 6; total, 12; marriages, 14; deaths, males, 6; females, 12; total, 18; death rate per 1,000, 17.56. Town has 12 public schools; number of scholars, 186; average daily attendance, 171; amount raised for support of schools, $1,297.40; from other sources, $264.22; total school revenue, $1,561.62. One free library; annual appropriation, $25.

Temple.—Located in southwest part of Hillsborough county; area, 13,400 acres. Railroad station, Greenville, on Peterborough and Shirley branch of Fitchburg railroad; banking town, Milford. Population, 1880, 402; 1890, 342. Ratable polls, 76; assessed valuation of land and buildings, $133,020; mills and machinery, $1,000; stock in trade, $1,200; money on hand, at interest, or on deposit, $10,096; stock in banks or corporations in state, $1,600; valuation of assessed live stock (129 horses, 28 oxen, 458 cows, 80 other cattle, 47 sheep, 18 hogs), $19,540; total assessed valuation, $175,128. Taxes assessed, $2,854.58; rate of taxation, $1.63 on $100; net debt, $110.84. Agriculture is the principal occupation. Births, females, 3; total, 3; no marriages; deaths, males, 4; females, 2; total, 6; death rate per 1,000, 17.54. Town has 5 public schools; number of scholars, 61; average daily attendance, 57; amount raised for support of schools, $529; from other sources, $181.69; total school revenue, $710.69. One free library, 1,120 volumes; annual appropriation, $50.

Thornton.—Located in eastern part of Grafton county; area, 28,490 acres. Railroad station, Thornton, on Pemige-

wasset Valley branch of C. & M. railroad; banking town, Plymouth. Population, 1880, 775; 1890, 632. Ratable polls, 153; assessed valuation of land and buildings, $136,729; mills and machinery, $1,025; stock in trade, $11,007; money on hand, at interest, or on deposit, $800; valuation of assessed live stock (239 horses, 108 oxen, 272 cows, 118 other cattle, 504 sheep, 3 hogs), $22,951; total assessed valuation, $187,812. Taxes assessed, $6,672.51; rate of taxation, $3.55 on $100; net debt, $7,117.04. Agriculture is the principal occupation. The manufacture of bobbins, last blocks, and lumber are minor industries. Births, males, 2; females, 5; total, 7; marriages, 5; deaths, males, 3; females, 5; total, 8; death rate per 1,000, 12 65. Town has 10 public schools; number of scholars, 142; average daily attendance, 118; amount raised for support of schools, $773; from other sources, $310.55; total school revenue, $1,083.55.

TILTON.—Located in western part of Belknap county; area, improved land, 8,612 acres. Railroad stations, Tilton and East Tilton, on C. & M. and Franklin & Tilton railroads; a banking town. Population, 1880, 1,282; 1890, 1,521. Ratable polls, 362; assessed valuation of land and buildings, $499,110; mills and machinery, $52,000; stock in trade, $44,800; money on hand, at interest, or on deposit, $53,590; stock in banks or corporations in state, $31,100; valuation of assessed live stock (290 horses, 57 oxen, 326 cows, 55 other cattle, 292 sheep, 6 hogs), $30,827; total assessed valuation, $753,567. Taxes assessed, $15,271.81; rate of taxation, $2.03 on $100; net debt, $822.24. Agriculture is an important occupation. The manufacture of knit goods, hosiery, repellants, wood pulp, optical goods, shoddy, paper boxes, etc., are the principal industries. Births, males, 17; females, 10; total, 27; marriages, 12; deaths, males, 14; females, 14; total, 28; death rate per 1,000, 18.40. Town has 10 public and 5 graded schools; number of scholars, 300; average daily attendance, 205; amount raised for support of schools, $2,059.55; from other sources, $2,746.06; total school revenue, $4,805.61. One free library, 3,300 volumes; annual appropriation, $500.

TROY.—Located in southern part of Cheshire county; area, improved land, 5,666 acres. A railroad station

on Cheshire Division Fitchburg railroad; banking town, Keene. Population, 1880, 796; 1890, 999. Ratable polls, 277; assessed valuation of land and buildings, $306,430; mills and machinery, $70,950; stock in trade, $45,065; money on hand, at interest, or on deposit, $14,784; stock in banks or corporations in state, $700; valuation of assessed live stock (202 horses, 26 oxen, 246 cows, 37 other cattle, 4 sheep, 1 hog), $22,040; total assessed valuation, $489,724. Taxes assessed, $6,759.33; rate of taxation, $1.38 on $100: surplus, $724.15. Agriculture is an important occupation. The manufacture of pails and tubs, woodenware, and horse blankets, are the principal industries. Births, males, 18; females, 21; total, 39; marriages, 20; deaths, males, 14; females, 17; total, 31; death rate per 1,000, 31.03. Town has 6 public and 3 graded schools; number of scholars, 201; average daily attendance, 126; amount raised for support of schools, $1,000; from other sources, $654.45; total school revenue, $1,654.45. One free library, 209 volumes; annual appropriation, $25.

TUFTONBOROUGH.—Located in southern part of Carroll county; area, 12,635 acres. Railroad station, Wolfeborough, on Northern Division B. & M. railroad: banking town, Wolfeborough. Population, 1880, 923; 1890, 767. Ratable polls, 194; assessed valuation of land and buildings, $203,568; mills and machinery, $1,200; stock in trade, $4,640; money on hand, at interest, or on deposit, $2,414: stock in banks or corporations in state, $300; valuation of assessed live stock (216 horses, 116 oxen, 417 cows, 255 other cattle, 124 sheep, 8 hogs), $29,538; total assessed valuation, $261,060. Taxes assessed, $7,237.77; rate of taxation, $2.77 on $100; net debt, $5,089.78. Agriculture is the principal occupation. The manufacture of staves, shingles, spool stock, and lumber, are the most important industries. Births, males, 5; females, 2; total 7; marriages, 6; deaths, males, 14; females, 12; total, 26; death rate per 1,000, 33.88. Town has 10 public schools; number of scholars, 130; average daily attendance, 117: amount raised for support of schools, $708.54; from other sources, $515.21; total school revenue, $1,243.75.

UNITY.—Located in central part of Sullivan county; area, 24,447 acres. Railroad stations, Claremont and Newport, on Northern Division B. & M. railroad; banking town, Claremont. Population, 1880, 814; 1890, 653. Ratable polls, 145; assessed valuation of land and buildings, $169,813; stock in trade, $500; money on hand, at interest, or on deposit, $5,540; stock in banks or corporations in state, $5,250; valuation of assessed live stock, (273 horses, 109 oxen, 437 cows, 188 other cattle, 1,570 sheep, 30 hogs), $37,718; total assessed valuation, $233,321. Taxes assessed, $3,849.42; rate of taxation, $1.65 on $100; surplus, $102.90. Agriculture is the principal occupation. Births, males, 7; females, 6; total, 13; marriages, 5; deaths, males, 9; females, 10; total, 19; death rate per 1,000, 29.09. Town has 7 public schools; number of scholars, 110; average daily attendance, 94; amount raised for support of schools, $700; from other sources, $762.12; total school revenue, $1,462.12.

WAKEFIELD.—Located in southeast part of Carroll county; area, improved land, 11,871 acres. Railroad stations, Wakefield, East Wakefield Depot, North Wakefield, Union, Wolfeborough Junction, on Northern Division B. & M. railroad; banking towns, Great Falls, Rochester, or Wolfeborough. Population, 1880, 1,392; 1890, 1,528. Ratable polls, 393; assessed valuation of land and buildings, $423,080; mills and machinery, $15,800; stock in trade, $31,710; money on hand, at interest, or on deposit, $50,402; stock in banks or corporations in state, $6,392; valuation of assessed live stock (275 horses, 180 oxen, 443 cows, 153 other cattle, 208 sheep, 5 hogs), $36,174; total assessed valuation, $604,128. Taxes assessed, $9,061.92; rate of taxation, $1.50 on $100; surplus, $1,535.73. Agriculture is an important occupation. The manufacture of clothing, satinets, brass fittings, excelsior, and lumber are the principal industries. Births, males, 18; females, 20; total, 38; marriages, 17; deaths, males, 25; females, 9; total, 34; death rate per 1,000, 22.25. Town has 13 public schools; number of scholars, 263; average daily attendance, 194; amount raised for support of schools, $1,120; from other sources, $1,477.23; total school revenue, $2,597.23. One free library, 600 volumes.

Walpole.—Located in northwest part of Cheshire county; area, 24,331 acres. Railroad stations, Walpole and Cold River, on Cheshire Division Fitchburg railroad; banking town, Keene. Population, 1880, 2,018; 1890, 2,163. Ratable polls, 689; assessed valuation of land and buildings, $1,095,700; mills and machinery, $3,000; stock in trade, $67,700; money on hand, at interest, or on deposit, $132,636; stock in banks or corporations in state, $25,000; valuation of assessed live stock (678 horses, 91 oxen, 1,061 cows, 224 other cattle, 5,050 sheep, 87 hogs), $107,812; total assessed valuation, $1,526,758. Taxes assessed, $21,851.88; rate of taxation, $1.43 on $100; net debt, $4,099.60. Agriculture is the principal occupation. The manufacture of pill boxes, malt liquors, sash and blinds, etc., are important industries. Births, males, 18; females, 21; total, 39; marriages, 17; deaths, males, 38; females, 26; total, 64; death rate per 1,000, 29.58. Town has 16 public, 5 graded, and 1 high school; number of scholars, 474; average daily attendance, 321; amount raised for support of schools, $3,700; from other sources, $3,528.20; total school revenue, $7,228.20. One free library, 4,834 volumes; annual appropriation, $250.

Warner.—Located in southwest part of Merrimack county; area, 31,851 acres. Railroad stations, Warner, Waterloo, Roby's Corner, Melvin's Mills, on Concord Division B. & M. railroad; banking town, Concord. Population, 1880, 1,537; 1890, 1,383. Ratable polls, 358; assessed valuation of land and buildings, $503,661; stock in trade, $34,404; money on hand, at interest, or on deposit, $51,428; stock in banks or corporations in state, $5,950; valuation of assessed live stock (451 horses, 112 oxen, 846 cows, 195 other cattle, 845 sheep, 13 hogs), $59,632; total assessed valuation, $692,955. Taxes assessed, $9,701.28; rate of taxation, $1.40 on $100; net debt, $25,131.15. Agriculture is the principal occupation. The manufacture of leather coats, vests, gloves, excelsior, axle paste, lumber, hubs, etc., are important industries. Births, males, 12; females, 7; total, 19; marriages, 18; deaths, males, 12; females, 17; total, 29; death rate per 1,000, 20.96. Town has 12 public, 2 graded, and 1 high school; number of scholars, 241; average daily attendance, 173; amount raised

for support of schools, $2,500; from other sources, $441.84; total school revenue, $2,941.84. One free library, 4,178 volumes.

WARREN.—Located in central part of Grafton county; area, 27,720 acres. Railroad stations, Warren and Warren Summit, on C. & M. railroad; banking town, Plymouth or Woodsville. Population, 1880, 786; 1890, 875. Ratable polls, 329; assessed valuation of land and buildings, $177,484; mills and machinery, $7,850; stock in trade, $15,202; money on hand, at interest, or on deposit, $19,800; stock in banks or corporations in state, $800; valuation of assessed live stock (288 horses, 68 oxen, 318 cows, 82 other cattle, 778 sheep, 11 hogs), $27,664; total assessed valuation, $274,700. Taxes assessed, $3,700.66; rate of taxation, $1 35 on $100; surplus, $1,645.54. Agriculture is the principal occupation. But little manufacturing is done in the town. Births, males, 3; females, 10; total, 13; marriages, 10; deaths, males, 4; females, 5; total, 9; death rate per 1,000, 10.28. Town has 9 public and 1 graded school; number of scholars, 144; average daily attendance, 101; amount raised for support of schools, $763.50; from other sources, $475.25; total school revenue, $1,238.75. One free library, 1,130 volumes.

WASHINGTON.—Located in southeast part of Sullivan county; area, 30,765 acres. Railroad station, Hillsborough Bridge, on Concord Division B. & M. railroad; banking town, Hillsborough. Population, 1880, 682; 1890, 569. Ratable polls, 149; assessed valuation of land and buildings, $216,526; mills and machinery, $6,880; stock in trade, $9,436; money on hand, at interest, or on deposit, $13,066; valuation of assessed live stock (196 horses, 80 oxen, 346 cows, 86 other cattle, 530 sheep, 8 hogs), $27,710; total assessed valuation, $289,292. Taxes assessed, $4,050.17; rate of taxation, $1.40 on $100; net debt, $1,108.44. Agriculture is the principal occupation. The manufacture of lumber and chair stock are minor industries. Births, male, 1; females, 2; total, 3; marriages, 4; deaths, males, 7; females, 6; total, 13; death rate per 1,000, 22.84. Town has 7 public schools; number of scholars, 103; average daily attendance, 78; amount raised for support of schools, $611; from other sources, $28.52;

total school revenue, $892.52. One free library, 2,230 volumes; annual appropriation, $32.44.

WATERVILLE.—Located in eastern part of Grafton county. Railroad station, Campton, on Pemigewasset Valley Branch C. & M. railroad; banking town, Plymouth. Population, 1880, 54; 1890, 39. Ratable polls, 9; assessed valuation of land and buildings, $37,721; mills and machinery, $400; stock in trade, $8,150; money on hand, at interest, or on deposit, $50; valuation of assessed live stock (19 horses, 21 oxen, 8 cows, 3 other cattle), $2,141; total assessed valuation, $49,462. Taxes assessed, $583.40; rate of taxation, $1.12 on $100; surplus, $842.57. No births, marriages, or deaths. Town has 1 public school; number of scholars, 8; average daily attendance, 8; amount raised for support of schools, $100; from other sources, $12.96; total school revenue, $112.96.

WEARE.—Located in northern part of Hillsborough county; area, 33,648 acres. Railroad stations, Oil Mills, Everett, East Weare, and North Weare, on North Weare branch C. & M. railroad; banking town, Manchester. Population, 1880, 1,829; 1890, 1,550. Ratable polls, 423; assessed valuation of land and buildings, $503,330; mills and machinery, $5,530; stock in trade, $38,558; money on hand, at interest, or on deposit, $25,792; stock in banks or corporations in state, $4,000; valuation of assessed live stock (462 horses, 151 oxen, 1,028 cows, 375 other cattle, 868 sheep, 8 hogs), $67,236; total assessed valuation, $688,504. Taxes assessed, $9,501.44; rate of taxation, $1.39 on $100; surplus, $1,494.40. Agriculture is the principal occupation. The manufacture of boots, shoes, handles, shoe tools, agricultural implements, carriages, toys, etc., are the principal industries. Births, males, 14; females, 8; total, 22; marriages, 7; deaths, males, 13; females, 17; total, 30; death rate per 1,000, 19.35. Town has 5 public and 1 graded school; number of scholars, 278; average daily attendance, 223; amount raised for support of schools, $1,487.50; from other sources, $1,400.05; total school revenue, $2,887.55. One free library, 160 volumes; annual appropriation, $25.

WEBSTER.—Located in central part of Merrimack county; area, 11,687 acres. Railroad station, Boscawen,

on Concord Division B. & M. railroad; banking town, Concord. Population, 1880, 647; 1890, 564. Ratable polls, 140; assessed valuation of land and buildings, $203,820; mills and machinery, $4,900; stock in trade, $5,090; money on hand, at interest, or on deposit, $20,771; stock in banks or corporations in state, $600; valuation of assessed live stock (267 horses, 56 oxen, 340 cows, 38 other cattle, 1,101 sheep, 12 hogs), $32,812; total assessed valuation, $286,448. Taxes assessed, $2,864.48; rate of taxation, $1.00 on $100; surplus, $1,684.26. Agriculture is the principal occupation. The manufacture of lumber, shingles, and chair stock, are the most important industries. Births, males, 4; females, 4; total, 8; marriages, 3; deaths, males, 5; females, 7; total, 12; death rate per 1,000, 21.27. Town has 7 public schools; number of scholars, 84; average daily attendance, 66; amount raised for support of schools, $609; from other sources, $256.12; total school revenue, $865.12.

WENTWORTH.—Located in central part of Grafton county; area, 23,040 acres. Railroad station, Wentworth, on C. & M. railroad; banking town, Plymouth. Population, 1880, 939; 1890, 698. Ratable polls, 211; assessed valuation of land and buildings, $145,794; mills and machinery, $3,600; stock in trade, $9,900; money on hand, at interest, or on deposit, $100; valuation of assessed live stock (263 horses, 80 oxen, 476 cows, 127 other cattle, 436 sheep, 7 hogs), $27,476; total assessed valuation, $207,970. Taxes assessed, $3,787.10; rate of taxation, $1.82 on $100; surplus, $900.13. Agriculture is the principal occupation. The manufacture of lumber, hoops, and bobbins, are minor industries. Births, males, 5; females, 4; total, 9; marriages, 4; deaths, males, 4; females, 3; total, 7; death rate per 1,000, 10.02. Town has 7 public schools; number of scholars, 116; average daily attendance, 81; amount raised for support of schools, $1,150.36; from other sources, $317.96; total school revenue, $1,468 32. One subscription library, 650 volumes.

WESTMORELAND.—Located in western part of Cheshire county; area, 22,466 acres. Railroad stations, East Westmoreland and Westmoreland on Fitchburg railroad; bank-

ing town, Keene. Population, 1880, 1,095; 1890, 830. Ratable polls, 247; assessed valuation of land and buildings, $354,383; mills and machinery, $2,570; stock in trade, $8,595; money on hand, at interest, or on deposit, $39,375; stock in banks or corporations in state, $4,400; valuation of assessed live stock (388 horses, 50 oxen, 858 cows, 326 other cattle, 957 sheep, 40 hogs), $64,229; total assessed valuation, $502,317. Taxes assessed, $5,525.49; rate of taxation, $1.10 on $100; net debt, $1,030.69. Agriculture is the principal occupation. But little manufacturing is done. Births, males, 2; females, 5; total, 7; marriages, 8; deaths, males, 11; females, 19; total, 30; death rate per 1,000, 36.14. Town has 8 public schools; number of scholars, 166; average daily attendance, 122; amount raised for support of schools, $1,400; from other sources, $966.09; total school revenue, $2,366.09. One free library, 895 volumes; annual appropriation, $100.

Whitefield.—Located in southwest part of Coös county; area, 20,680 acres. Railroad stations, Hazen Junction and Whitefield, on C. & M. and Maine Central railroads; a banking town. Population, 1880, 1,828; 1890, 2,041. Ratable polls, 573; assessed valuation of land and buildings, $406,327; mills and machinery, $30,800; stock in trade, $110,000; money on hand, at interest, or on deposit, $12,750; stock in banks or corporations in state, $2,500; valuation of assessed live stock (581 horses, 88 oxen, 688 cows, 197 other cattle, 300 sheep, 49 hogs), $61,823; total assessed valuation, $684,286. Taxes assessed, $11,734.57; rate of taxation, $1.71 on $100; net debt, $58,510.30. Agriculture is a leading occupation. The manufacture of lumber, butter tubs, kindlings, overalls and frocks, bobbins and shoe pegs are important industries. Births, males, 23; females, 22; total, 45; marriages, 22; deaths, males, 14; females, 24; total, 38; death rate per 1,000, 18.61. Town has 13 public, 6 graded, and 1 high school; number of scholars, 458; average daily attendance, 323; amount raised for support of schools, $1,800; from other sources, $2,220.78; total school revenue, $4,020.78. One subscription library, 1,044 volumes; annual appropriation, $100.

WILMOT.—Located in northwest part of Merrimack county; area, 15,755 acres. Railroad stations, West Andover and Potter Place, on B. & M. railroad. Population, 1880, 1,080; 1890, 840. Ratable polls, 178; assessed valuation of land and buildings, $170,513; mills and machinery, $5,300; stock in trade, $6,350; money on hand, at interest, or on deposit, $2,350; valuation of assessed live stock (240 horses, 124 oxen, 413 cows, 165 other cattle, 1,103 sheep), $32,587; total assessed valuation, $235,600. Taxes assessed, $3,771.20; rate of taxation, $1.60 on $100; net debt, $3,816.48. Agriculture is the principal occupation. The manufacture of lumber and leather are minor industries. Births, males, 6; females, 3; total, 9; marriages, 5; deaths, males, 8; females, 7; total, 15; death rate per 1,000, 17.85. Town has 8 public schools; number of scholars, 149; average daily attendance, 105; amount raised for support of schools, $889.29; from other sources, $387.25; total school revenue, $1,276.54.

WILTON.—Located in central part of Hillsborough county; area, 15,280 acres. Railroad station, Wilton, on B. & M. railroad; banking town, Milford or Nashua. Population, 1880, 1,747; 1890, 1,850. Ratable polls, 419; assessed valuation of land and buildings, $674,255; mills and machinery, $80,850; stock in trade, $55,985; money on hand, at interest, or on deposit, $48,167; stock in banks or corporations in state, $4,000; valuation of assessed live stock (353 horses, 40 oxen, 735 cows, 106 other cattle, 199 sheep, 141 hogs), $49,717; total assessed valuation, $972,614. Taxes assessed, $14.589.21; rate of taxation, $1.50 on $100; net debt, $23,682.52. Agriculture is the principal occupation. The manufacture of flannels, dry measures, carriages, carpet yarns, desks, fancy boxes, door knobs, and agricultural implements, etc., are the most important industries. Births, males, 18; females, 25; total, 43; marriages, 13; deaths, males, 40; females, 34; total, 74; death rate per 1,000, 40.00. Town has 10 public, 5 graded, and 1 high school; number of scholars, 325; average daily attendance, 210; amount raised for support of schools, $3,000; from other sources, $448.76; total school revenue, $3,448.76. One free library, 2,400 volumes; annual appropriation, $300.

WINCHESTER.—Located in southwest part of Cheshire county; area, 33,534 acres. Railroad stations, Ashuelot and Winchester, on Ashuelot Branch B. & M. railroad; a banking town. Population, 1880, 2,444; 1890, 2,584. Ratable polls, 779; assessed valuation of land and buildings, $877,028; mills and machinery, $113,900; stock in trade, $131,280; money on hand, at interest, or on deposit, $59,935; stock in banks or corporations in state, $70,400; valuation of assessed live stock (550 horses, 54 oxen, 920 cows, 121 other cattle, 289 sheep, 37 hogs), $65,445; total assessed valuation, $1,436,069. Taxes assessed, $20,674; rate of taxation, $1.44 on $100; net debt, $17,534.20. Agriculture is the principal occupation. The manufacture of cotton warp, union beavers, pails, boxes, paper, anti-rattlers, leather, etc., are the most important industries. Births, males, 24; females, 22; total, 46; marriages, 20; deaths, males, 21; females, 21; total, 42; death rate per 1,000, 36.14. Town has 20 public, 8 graded, and 1 high school; number of scholars, 528; average daily attendance, 433; amount raised for support of schools, $6,750; from other sources, $1,373.66; total school revenue, $8,123.66. One free library, 4,000 volumes; annual appropriation, $300.

WINDHAM.—Located in southwest part of Rockingham county; area, 15,744 acres. Railroad stations, West Windham and Windham Junction, on B. & M. railroad; banking towns, Derry Depot, Nashua, Methuen, Mass., or Lawrence, Mass. Population, 1880, 695; 1890, 632. Ratable polls, 164; assessed valuation of land and buildings, $284,850; mills and machinery, $11,800; stock in trade, $16,022; money on hand, at interest, or on deposit, $2,900; valuation of assessed live stock (224 horses, 12 oxen, 469 cows, 58 other cattle, 36 sheep, 4 hogs), $26,736; total assessed valuation, $360,090. Taxes assessed, $4,753.19; rate of taxation, $1.32 on $100; surplus, $647.02. Agriculture is the principal occupation. The manufacture of lumber, harness, fine wool, extracts, etc., are important industries. Births, males, 6; females, 4; total, 10; marriages, 3; deaths, males, 2; females, 7; total, 9; death rate per 1,000, 14.24. Town has 6 public schools; number of scholars, 93; average daily attendance, 90; amount raised for support of schools, $584.50; from other sources, $834.24; total school revenue, $1,418.74

One free library, 2,783 volumes; annual appropriation, $44.

WINDSOR.—Located in northwest part of Hillsborough county; area, improved land, 2,604 acres. Railroad station, Hillsboro Bridge, on B. & M. railroad; banking town, Hillsboro. Population, 1880, 65; 1890, 62. Ratable polls, 12; assessed valuation of land and buildings, $31,794; money on hand, at interest, or on deposit, $1,165; valuation of assessed live stock (18 horses, 6 oxen, 47 cows, 25 other cattle, 24 sheep), $2,340; total assessed valuation, $36,989. Taxes assessed, $302.73; rate of taxation, $0.82 on $100; surplus, $372.64. Agriculture and lumbering are the principal occupations. Birth, female, 1; total, 1; marriage, 1; deaths, males, 2; total, 2; death rate per 1,000, 32.25. Town has 2 public schools; number of scholars, 12; average daily attendance, 7; amount raised for support of schools, $80; from other sources, $24; total school revenue, $104.

WOLFEBOROUGH.—Located in southern part of Carroll county; area, 28,680 acres. Railroad station, Wolfeboro, on Northern division B. & M. railroad; a banking town. Population, 1880, 2,222; 1890, 3,020. Ratable polls, 680; assessed valuation of land and buildings, $829,920; mills and machinery, $6,250; stock in trade, $48,574; money on hand, at interest, or on deposit, $11,848; stock in banks or corporations in state, $44,700; valuation of assessed live stock (561 horses, 132 oxen, 724 cows, 316 other cattle, 298 sheep, 10 hogs), $60,544; total assessed valuation, $1,179,646. Taxes assessed, $26,738.87; rate of taxation, $2.27 on $100; net debt, $111,835.40. Agriculture and the entertainment of summer boarders are the principal occupations. The manufacture of clothing, boots, shoes, carriages, furniture, excelsior, lumber, boxes, blankets, leather, etc., are important industries. Births, males, 18; females, 13; total, 31; marriages, 25; deaths, males, 27; females, 22; total, 49; death rate per 1,000, 16.22. Town has 15 public, 8 graded, and 1 high school; number of scholars, 535; average daily attendance, 478; amount raised for support of schools, $1,949.50; from other sources, $6,690.36; total school revenue, $8,645.86. One free library, 1,100 volumes.

Woodstock.—Located in central part of Grafton county; area, 33,359 acres. Railroad stations, North Woodstock and Woodstock, on Pemigewasset Valley branch C. & M. railroad; banking town, Plymouth. Population, 1880, 367; 1890, 341. Ratable polls, 111; assessed valuation of land and buildings, $109,264; mills and machinery, $1,320; stock in trade, $7,818; money on hand, at interest, or on deposit, $450; stock in banks or corporations in state, $10,200; valuation of assessed live stock (128 horses, 32 oxen, 106 cows, 24 other cattle, 92 sheep, 4 hogs), $9,646; total assessed valuation, $151,328. Taxes assessed, $3,667.54; rate of taxation, $2.43 on $100; net debt, $8,220.78. Agriculture is the principal occupation. The manufacture of lumber, shingles, and bobbins, are minor industries. Births, males, 4; females, 2; total, 6; marriages, 4; deaths, males, 4; females, 3; total, 7; death rate per 1,000, 20.52. Town has 3 public schools; number of scholars, 65; average daily attendance, 44; amount raised for support of schools, $500; from other sources, $141.82; total school revenue, $641.82. One free library, 449 volumes; annual appropriation, $30.

WAGE-EARNERS' STATISTICS.

SHOWING INDIVIDUAL REPORTS BY OCCUPATIONS, WITH SUMMARIES, ETC.

WAGE-EARNERS' STATISTICS.

A year ago the Bureau of Labor sent out 4,000 blanks to laboring men engaged in the building trades in all sections of the state, and in response to the call for information, ten per cent. of the number made satisfactory reports, and expressed themselves upon various topics of general interest to the laboring classes. This information was compiled and presented in tabular form in the first report of the Bureau issued in 1893.

Early in the year 1894 blanks were prepared, in which a more comprehensive series of questions, covering a larger field of inquiry, were asked, and an urgent appeal was made for information along the lines suggested. Over 10,000 blanks were sent to as many individuals in various parts of the state, covering many branches of industry not entered into the year before, and although assurance was given that access should not be had to the returns by any one aside from the officials of the Bureau, and that identity should in no way be revealed in the printed report, the returns made were exceedingly meagre. Less than seven per cent. filled out reports and returned them to the Bureau. These have been tabulated, and are herewith presented. They furnish a fund of information of great interest to all in any way interested in the industrial problem.

The tables are arranged alphabetically by occupations, and each industry is carried across four pages. Where it became necessary, in tabulation, to divide an industry, the concluding portion is carried forward four pages, and continued as in first instance. Following the individual reports, tabulated summaries, classified by industries, are

given, which in turn are followed by an analysis of the tables, and an expression of opinion upon labor matters by quite a large number of individuals reporting to the bureau.

In the collection of labor statistics use was made of the following blank, printed on both sides of a single sheet:

STATE OF NEW HAMPSHIRE.

BUREAU OF LABOR,

Office, Chase Building,

CONCORD, May 14, 1894.

DEAR SIR: The law creating the Bureau of Labor, Chap. 48, Laws of 1893, makes it the duty of the Commissioner "to collect, assort, arrange and present in annual reports, on or before the first day of January, each year, statistical details relating to all departments of labor in the state of New Hampshire, especially in relation to the commercial, industrial, social, educational, and sanitary condition of the laboring classes, and the permanent prosperity of the productive industry of the state."

The chief purpose of this statute is to obtain such knowledge of the general condition of the laboring people of New Hampshire, the "bone and sinew" of the state, as shall show what evils may exist in our present labor system, the cause of their existence, the proper remedies for their removal, and such other information as may give a true insight into their every day life, with a view to advancing their industrial and social welfare.

This information can be obtained, and statistics of real value secured, only by *the hearty co-operation of every wage-earner in New Hampshire*, and this assistance the Commissioner respectfully requests. Nearly 27 years' experience as a workman, laboring for day wages, has placed him in hearty sympathy with those who earn their living by the sweat of their brow, and in any movement that will tend to ameliorate and improve their condition in life, and it is to them he looks for assistance in his present work.

That the duty imposed upon the Commissioner by the above statute may be truthfully and conscientiously performed, and complete and reliable statistics relating to the general condition of wage-earners may be obtained, a list of questions (see other side) has been prepared, which it is hoped will be promptly and accurately answered by each individual receiving them. It cannot be too forcibly impressed upon the mind of every working-man, that it is only by the help given the Bureau in this way, that the best interests of the laboring classes can be subserved. Were it possible, the Commissioner would be glad to

call upon you in person and solicit your replies, form your personal acquaintance, and give any verbal explanation desired, but this not being the case, this is his only method of communication with you.

The questions asked have been made as self-explanatory as possible, and applicable to all conditions of life—native or foreign born, married, single, or widowed, whether working by the day, week, or month, boarding, or keeping house, owning property or otherwise—and a little care will easily discern those questions that are applicable to your individual case. *These should be fully and correctly answered.* While some of the questions asked may seem to be of a personal and private character, the intelligent workman will readily observe that it is only by asking such questions and obtaining true replies thereto, that the exact condition of the toiling masses can be obtained; and that *without such information no correct understanding of the needs of the laboring classes can be formed, and no recommendations for their advancement can be made.*

The Commissioner especially desires, also, that under the head of "Remarks," each individual will freely express his views upon the subjects suggested, or upon any topic that may seem to him to be opportune and of interest to the labor element. The opinions of working-men upon various subjects, as expressed in the first annual labor report, forms one of its most valuable features. It is the intention of the Bureau to continue this popular feature, and to make subsequent annual reports the mouth-piece through which all classes of laboring people can speak to the public upon any subject concerning their interests, in their own language. Unfamiliarity with writing for public perusal need not deter a single individual from expressing his opinions. His words will be put in proper shape, and nothing will be published that will in any way reveal his identity.

☞Lest there should be any apprehension that answering any of the questions asked, or expressing opinions upon any subject, may be prejudicial to your personal or business interests, the Commissioner desires it to be distinctly understood that THE BUREAU WILL PRESERVE THE STRICTEST CONFIDENCE with all correspondents, and that *names of persons or places of residence will not appear in the annual report, or be otherwise given to the public.*

You will confer a great favor, and materially assist the Bureau of Labor in its work in your behalf, by *at once* answering the questions herewith submitted, and expressing your opinion upon suggested or other topics, and *promptly* forwarding the same to this office in enclosed prepaid, addressed, return envelope.

Sincerely yours,

JOHN W. BOURLET,

Commissioner of Labor.

INDIVIDUAL LABOR SCHEDULE.

1. Place of birth (state or country).....
2. Nativity of parents—Father.....Mother.....
3. Are you married?..... Single?..... Widower?.....
4. Number of children (under 21 years of age) in family.....
5. Number of children attending school..... Number of weeks at school during past year.....
6. Total number who depend on you for support (include yourself, wife, children, aged parents, and all others).....
7. What is your occupation?.....
8. State the particular branch of occupation in which you are engaged.....
9. How many years with present employer?.....
10. How many years have you worked at your present occupation?....
11. Number of hours employed first five days of the week.....
12. Number of hours employed Saturday.....
13. Number of days unemployed during past year.....
14. Cause of non-employment (whether from sickness, inability to obtain work, vacation, or other cause).....
.....
15. Wages paid you per day, $.....; or week, $..... or month, $....., whichever way you are paid.
16. Do you work by the piece?..... If so, what is your average weekly earnings? $.....
17. Were your wages decreased during year?..... How much per week? $..... Cause of reduction in wages.....
.....
18. How often are you paid your wages?.....
19. Is any part of your wages withheld?..... If so, how many days' pay?.....
20. Could you live cheaper if paid oftener?.....
21. Individual earnings of yourself during past year, $.....
22. Annual earnings (if any) of your wife, $.....
23. Annual earnings (if any) of your children who depend upon you for support, $.....
24. Income (if any) from other sources, $.....
25. Total income (including earnings) of entire family, $.....
26. At what age did you begin work?.....; present age?.....
27. If foreign born, how many years have you been in this country?....
28. What was your occupation in the old country.....
29. What wages were you paid in the old country per day? $..... or per week? $.....; or per month? $....., whichever way you were paid.
30. How many hours for a day's work in the old country?.....
31. Is the general condition of working-men better in America than in the old country?.....

32. What has been your indivdual living expenses (if single) for the past year? $.....
33. What has been your family expenses (if married or widowed) for the past year? $.....
34. Can you earn more than enough to pay family expenses?.....
35. Do you require the wages earned (if any) by your wife and children to help support your family?.....
36. Have you a savings-bank account?.....
37. Have you saved any earnings during year?.....
38. Do you own a home?..... Estimated value of home, $.....
39. Is it incumbered by mortgage or other indebtedness?.....
40. Is it insured against damage by fire?.....
41. How many rooms do you occupy?.....
42. Sanitary condition of home?.....
43. Do you hire a tenement?.....; rent per month, $.....
44. How many rooms do you occupy?.....
45. Are there other families in same house or tenement block?..... How many in all?.....
46. What is the sanitary condition of the tenement you occupy?.....
47. If boarding, give amount paid for board per week, including room, $.....
48. Do you keep an account of your living expenses?.....
49. Do you have the use of a public library?.....
50. Do you take books therefrom?..... ...
51. How many fraternal associations do you belong to?.....
52. Amount (in all) of yearly dues, assessments, etc., $.....
53. How much weekly benefits would you be entitled to in case of sickness, accident, etc.? $.....
54. In case of your death, how much would your family be entitled to? $.....
55. Do you belong to a trade union?.....

REMARKS.

Under this head, express yourself freely on the advisability of an eight-hour work day; the influence of trade unions among the laboring classes; what legislation would, in your judgment, benefit the laboring people; in what direction can their educational, financial, and social condition be best improved; the effect upon working people of the present depression in business; the displacement of labor by improved machinery; manual training schools; foreign immigration; homes for working people; or upon any topic that may, in your opinion, be of interest to the laboring men and women of New Hampshire.

INDIVIDUAL REPORTS.

BAKERS.

TABLE 25.—*Showing branch of occupation in which engaged, birthplace of person reporting, nationality of father and mother, married or single etc.*

Blank number.	Branch of occupation.	Birthplace.	Nationality of father.	Nationality of mother.	Mar., single, wid.	Children in family.
1,564	Baker	Scotland	Scotch	Scotch	M.	2
1,722	Fancy baker	Ireland	Irish	Irish	M.	4
1,875	Second hand	Ireland	Irish	Irish	M.	3
5,316	Cracker baker	New Hampshire	Irish	Irish	M.	4
8,081	Bread baker	Illinois	American	American	S.	

BARBERS.

TABLE 26.—*Showing branch of occupation in which engaged, etc.*

681	Barber	New Hampshire	American	American	S.	
1,403	Barber	New Hampshire	American	American	M.	
1,782	Barber	New Hampshire	American	American	M.	
2,782	Hair dresser	New Hampshire	Irish	Irish	M.	4
3,948	Hair dresser	Belgium	German	Portuguese	M.	
4,433	Barber	New Hampshire	American	American	S.	
4,989	Barber	New Hampshire	American	English	S.	
5,095	Barber	New Hampshire	American	American	M.	
7,819	Barber	Maine	Irish	Irish	M.	4
8,988	Proprietor	New Hampshire	American	American	M.	
9,027	Barber	New Hampshire	American	American	M.	
9,654	Proprietor	New Hampshire	American	American	M.	2

BLACKSMITHS.

TABLE 27.—*Showing branch of occupation in which engaged, etc.*

156	Jobber	New Hampshire	American	American	....	1
489	Jobber	Vermont	American	American	S.	
899	Horse shoer	Nova Scotia	Canadian	Canadian	M.	2
1,391	Horse shoer	New Hampshire	American	American	M.	
1,624	Jobber	Scotland	Scotch	Scotch	M.	2
2,358	Tool dresser	Massachusetts	American	American	M.	1
2,763	Forger	New Hampshire	American	American	M.	2
3,108	Blacksmith	Province Quebec	Canadian	Canadian	M.	1
3,201	Horse shoer	P. E. Island	Scotch	Scotch	S.	
3,858	Forger	Maine	American	American	M.	

INDIVIDUAL REPORTS.

BAKERS.

Showing school conditions, age began work, years in occupation, hours employed weekly, number of days unemployed and cause of non-employment, wage conditions, etc.

No. at school.	Weeks at school.	Dependent in fam.	Age began work.	Yrs. in occupation.	With employer.	Hours weekly.	Hours Saturday.	Days unemployed during year.	Cause of non-employment.	Wages per week.	Wages decreased.	Weekly reduction.	Wages paid.
..	..	4	14	14	3	60	10	6	.....	$13.00	no	.....	Weekly.
1	..	6	12	20	2	60	10	....	.....	21.00	no	.....	Weekly.
..	..	5	16	14	3	78	15	90	Dull times.....	12.00	no	.....	Weekly.
3	21	6	18	30	30	60	10	....	.....	17.00	no	.....	Weekly.
..	..	..	9	8	1	72	12	....	.....	18.00	no	.....	Weekly.

BARBERS.

Showing school conditions, age began work, hours employed weekly, etc.

..	..	2	15	7	3	74	15	58	.....	$14.00	no	.....	Weekly.
..	..	..	18	9	3	..	..	150	.....	.....	yes	$6.00	
..	..	2	15	16	16	60	10	100	Sickness.....	12.00	no	.....	Weekly.
2	25	6	16	8	..	60	14	2	.....	20.00	....	.....	
..	..	..	15	13	..	71	15	....	.....	12.00	....	.....	Weekly.
..	..	..	16	4	2	72	16	28	Sickness	10.00	yes	3.00	Weekly.
..	..	..	8	8	2	80	16	180	.....	13.00	yes	1.00	Weekly.
..	..	..	6	8	8	..	..	....	.....	12.00	no	.....	Weekly.
1	15	6	7	9	9	76	16	4	.....	15.00	yes	6.00	Weekly.
..	..	2	..	5	..	..	..	....	.....	.....	....	.....	
..	..	4	5	27	25	76	17	....	.....	.....	yes	.....	
2	26	4	12	28	..	76	16	90	Sickness	.....	....	.....	

BLACKSMITHS.

Showing school conditions, age began work, hours employed weekly, etc.

..	..	3	20	36	27	60	10	6	.....	$12.00	no	.....	Weekly.
..	..	..	14	12	1	60	10	....	.....	15.00	no	.....	Weekly.
2	..	4	..	15	..	..	..	....	.....	.....	....	.....	
..	..	2	..	25	25	60	10	6	.....	15.00	....	.....	
1	36	4	13	..	..	40	..	140	Dull times.....	6.50	yes	.....	Fortnightly.
..	..	3	14	35	20	60	10	40	No work.....	15.00	yes	$2.50	Fortnightly.
1	36	4	17	14	20	60	9	250	No work and sickness...	13.50	yes	1.50	Weekly.
1	36	3	13	..	..	..	..	....	.....	11.00	....	.....	
..	..	..	16	8	1	60	10	50	No work and vacation...	12.00	no	.....	Weekly.
..	..	2	20	12	12	60	10	10	Hard times.....	13.50	yes	1.50	Fortnightly.

INDIVIDUAL REPORTS.

BAKERS.

TABLE 25 (CONCLUDED).—*Showing individual earnings, income from other sources and total income, living expenses, savings account, home conditions, etc.*

Blank number.	Wages withheld.	No. days' pay.	Individual earnings of self during year.	Income from other sources.	Total income.	Living expenses (single).	Living expenses (with family).	Earn more than family expenses.	Wages of wife or children required.	Savings-bank account.	Saved earnings.	Own a home.	Estimated value of home.	Home incumbered
1,564	no	..	$670	.....	$670	.....	$670	no	....	no	no	no	.....	....
1,722	no	..	1,000	.....	1,000	.....	750	yes	....	yes	yes	no	.....	....
1,875	....	..	435	.....	435	.....	435	no	yes	no	no	no	.....	....
5,316	no	..	.....	.....	.....	.....	.....	.....	....	no	no	yes	$2,000	yes
8,081	no	..	936	.....	936	$350	.....	.....	....	yes	yes	no	.....	....

BARBERS.

TABLE 26 (CONCLUDED).—*Showing individual earnings, income, etc.*

681	no	..	$800	.....	$800	$450	.....	yes	....	yes	yes	no	.....	....
1,403	....	..	.....	.....	.....	.....	$400	.....	....	yes	no	no	.....	....
1,782	no	..	.....	.....	.....	.....	.....	.....	....	yes	no	no	.....	....
2,782	no	..	900	.....	900	.....	800	yes	....	no	no	no	.....	....
3,948	no	..	600	.....	600	.. ...	.....	no	....	no	no	no	.....	....
4,433	no	..	480	.....	480	.....	.....	.....	....	yes	no	no	.....	....
4,989	no	..	.....	.....	.....	260	.....	.....	....	.....	.....	.....	.....	....
5,095	no	..	.....	.....	.....	.....	.....	.....	....	yes	yes	yes	$4,000	no
7,819	no	..	800	.....	800	.....	550	yes	....	no	no	no	.....	....
8,988	....	..	.....	.....	.....	.....	.....	.....	....	....	....	....	.....	....
9,027	....	..	.....	.....	.....	.....	.....	.....	....	no	no	yes	1,500	yes
9,654	....	..	650	.....	650	.....	.....	no	....	no	no	no	.....	....

BLACKSMITHS.

TABLE 27 (CONCLUDED).—*Showing individual earnings, income, etc.*

156	no	..	$500	.....	$500	.....	.....	yes	....	yes	yes	yes	$750	no
489	no	..	780	.....	780	.....	.....	yes	....	no	yes	....	.....	....
899	....	..	.....	.....	.....	.....	.....	yes	....	....	....	yes	2,200	no
1,391	....	..	.....	.....	.....	.....	.....	yes	yes	no	yes	yes	1,800	no
1,624	yes	4	294	.....	294	.....	.....	no	....	yes	no	no	.....	....
2,358	no	..	525	$150	675	.....	$500	yes	....	no	yes	no	.....	....
2,763	no	..	.....	.....	.....	.....	.....	yes	....	....	....	yes	800	yes
3,108	....	..	750	.....	750	.....	.....	.....	....	....	....	yes	2,000	yes
3,201	no	..	500	.....	500	$234	.....	.....	....	no	yes	....	.....	....
3,858	yes	3	.....	.....	.....	.....	400	yes	....	no	yes	yes	2,000	no

INDIVIDUAL REPORTS.

BAKERS.

Showing home conditions, board per week with room, number of fraternal orders connected with, amount yearly dues, weekly benefits, death benefits, trade union, etc.

Ins. against fire.	No. rooms occ'p'd.	Sanitary condition of home.	Occupy tenement.	Monthly rent.	No. rooms occ'p'd.	Sanitary condition of tenement.	Board per week, including room.	Keep account of living expenses.	Take books from public library.	No. frat'l orders.	Am't yearly dues, assessments, etc.	Weekly benefits.	Death benefits payable to family.	Belong to trade union.
....	..	.....	yes	$10.00	7	good	.....	no	no	..	.....	.....	.....	no
....	..	.....	yes	12.00	4	good	.....	.....	yes	..	.....	.....	.....	no
....	..	.....	yes	7.00	4	good	.....	yes	no	..	.....	.....	.....	no
yes	7	good	no	.....	..	.....	.....	.....	yes	1	.....	$4.00	$50.00	no
....	..	.....	.....	.....	..	.....	$4.00	yes	no	..	.....	.....	.....	no

BARBERS.

Showing home conditions, fraternal statistics, etc.

....	..	.....	.....	.....	..	.....	$4.50	no	yes	3	$13.00	$9.00	$1,100	no
....	..	.....	.....	.....	..	.....	6.00	no	yes	..	.....	.....	.....	no
....	..	.....	yes	$23.00	9	good	.....	yes	yes	..	.....	.....	.....	no
....	..	.....	yes	9.00	5	good	.....	yes	yes	3	24.00	15.00	1,100	yes
....	..	.....	yes	12.50	4	good	.....	no	yes	3	19.00	15.00	125	yes
....	..	.....	.....	.....	..	.....	5.50	no	no	2	16.00	5.00	50	yes
....	..	.....	.....	.....	..	.....	5.00	yes	.....	..	.....	.....	.....	yes
yes	9	good	no	.....	..	.....	.....	.....	.....	1	3.00	.....	.....	no
....	..	.....	yes	9.00	5	bad	.....	no	yes	1	6.00	5.00	100	no
....	..	.....	.....	.....	..	.....	.....	.....	.....	..	.....	.....	.....	....
yes	8	good	no	.....	..	.....	.....	no	.....	1	3.00	.....	.....	no
....	..	.....	yes	6.50	6	fair	.....	no	no	2	8.00	4.00	30	no

BLACKSMITHS.

Showing home conditions, fraternal statistics, etc.

yes	7	good	no	.....	..	.....	.....	no	yes	1	$2.00	.....	.....	no
....	..	.....	.....	.....	..	.....	$3.75	yes	.....	1	12.00	$5.00	$60	no
yes	10	good	no	.....	..	.....	.....	.....	yes	1	20.00	.....	3,000	no
yes	5	good	no	.....	..	.....	.....	no	yes	2	.....	.....	.....	no
....	..	.....	yes	$11.00	6	good	.....	no	yes	1	23.00	5.00	500	no
....	..	.....	yes	15.00	7	good	.....	no	yes	1	5.00	5.00	100	no
....	5	.....	no	.....	..	.....	.....	no	no	..	.....	.....	.....	no
yes	5	good	no	.....	..	.....	.....	.....	.....	1	.....	6.00	.....	no
....	..	.....	.....	.....	..	.....	4.50	no	no	1	7.00	4.00	.....	yes
yes	7	good	no	.....	..	.....	.....	no	no	..	.....	.....	.....	no

INDIVIDUAL REPORTS.

BLACKSMITHS.

TABLE 27 (CONTINUED).—*Showing branch of occupation in which engaged, birthplace of person reporting, nationality of father and mother, married or single, etc.*

Blank number.	Branch of occupation.	Birthplace.	Nationality of father.	Nationality of mother.	Mar., single, wid.	Children in family.
5,089	Forger	Ireland	Irish	Irish	M.	2
5,948	Jobber	New Hampshire.	American	American	M.	
6,215	Jobber	France	French	French	S.	
7,574	Forger	New Jersey	American	American	M.	1
8,753	Forger	New Hampshire.	American	American	M.	
9,745	Horse shoer	New Hampshire.	American	American	M.	2
10,153	Horse shoer	P. E. Island	Irish	Irish	M.	1

BOOKBINDERS.

TABLE 28.—*Showing branch of occupation in which engaged, etc.*

3,677	Forwarder	Massachusetts	German	German	S.	
3,828	Binder	Scotland	Scotch	Scotch	M.	2
4,466	Forwarder	Ireland	Irish	Irish	M.	7
6,771	Finisher	Nova Scotia	English	German	S.	

BOOKKEEPERS.

TABLE 29.—*Showing branch of occupation in which engaged, etc.*

57	Bookkeeper	Canada	French	French	M.	2
783	Bookkeeper	New Hampshire.	American	American	M.	4
2,465	Bookkeeper	Massachusetts	American	American	M.	
3,610	Bookkeeper	Canada	Canadian	Canadian	S.	
3,765	Bookkeeper	United States	American	American	M.	2
4,588	Bookkeeper	Massachusetts	American	American	M.	
4,700	Bookkeeper	New Hampshire.	American	American	M.	1
4,870	Bookkeeper	New Hampshire.	American	American	M.	
6,090	Bookkeeper	New Hampshire.	American	American	S.	
7,004	Bookkeeper	New Hampshire.	American	American	S.	
8,091	Bookkeeper	New Hampshire.	American	American	S.	
8,170	Bookkeeper	Maine	American	American	S.	
9,012	Bookkeeper	New Hampshire.	American	American	S.	
9,026	Bookkeeper	Massachusetts	American	American	M.	3
9,813	Bookkeeper	Massachusetts	American	American	M.	2

INDIVIDUAL REPORTS.

BLACKSMITHS.

Showing school conditions, age began work, years in occupation, hours employed weekly, number of days unemployed and cause of non-employment, wage conditions, etc.

No. at school.	Weeks at school.	Dependent in fam.	Age began work.	Yrs. in occupation	With employer.	Hours weekly.	Hours Saturday.	Days unemployed during year.	Cause of non-employment.	Wages per week.	Wages decreased.	Weekly reduction.	Wages paid.
1	36	4	12	30	30	60	10	150	Bad times	.....	yes	$1.00	
..	..	2	10	4	4	60	10	6	Vacation	$10.00	....	.....	Weekly.
..	..	..	14	8	1	60	10	150	Unable to find work	6.00	....	.....	
..	..	3	15	9	6	57	9	60	Hard times	18.00	yes	2.50	Weekly.
..	..	2	10	30	3	57	8	....	.....	12.00	yes	.....	Weekly.
..	..	4	11	10	10	65	15	6	.....	.....	....	.....	Weekly.
..	..	3	12	8	2	60	10	6	.....	10.50	yes	3.00	Weekly.

BOOKBINDERS.

Showing school conditions, age began work, etc.

..	..	..	13	20	3	59	9	....	.....	$16.00	no	.....	Weekly.
..	..	7	14	25	1	57	7	6	Dullness of trade	12.00	....	....	Weekly.
5	38	9	13	26	1	59	9	12	Vacation	15.00	no	.....	Weekly.
..	..	..	10	6	3	59	9	12	Vacation	16.00	no	.....	Weekly.

BOOKKEEPERS.

Showing school conditions, age began work, etc.

..	..	4	21	2	2	90	15	....	.....	$13.50	no	.....	Weekly.
1	36	6	18	12	9	60	10	15	Vacation	18.00	no	.....	Fortnightly.
..	..	2	16	20	1	60	10	....	.....	7.50	no	.....	
..	..	3	16	4	2	59	9	18	Vacation	18.00	no	.....	Weekly.
1	..	4	19	..	2	64	12	....	.....	10.00	no	.....	Weekly.
..	..	2	17	45	3	60	15	....	.....	10.00	....	.....	
..	..	3	21	15	2	..	..	180	Sickness	10.00	....	.....	Weekly.
..	..	2	18	25	5	56	11	....	.....	12.00	no	.....	Monthly.
..	..	..	18	3	2	66	13	....	.....	13.50	no	.....	Weekly.
..	..	..	17	5	..	60	..	120	Out of work	12.00	no	.....	
..	..	..	19	3	3	54	9	13	Vacation	7.00	....	.....	Fortnightly.
..	..	..	..	5	4	60	10	....	.....	12.00	....	.....	Weekly.
..	..	..	18	4	1	..	..	175	Sickness	10.00	....	.....	Monthly.
..	..	5	19	8	7	60	10	....	.....	16.00	no	.....	Monthly.
..	..	5	15	5	9	64	12	21	Sickness and vacation	.....	no	.....	Weekly.

INDIVIDUAL REPORTS.

BLACKSMITHS.

TABLE 27 (CONCLUDED).—*Showing individual earnings, income from other sources and total income, living expenses, savings account, home conditions, etc.*

Blank number.	Wages withheld.	No. days' pay.	Individual earnings of self during year.	Income from other sources.	Total income.	Living expenses (single).	Living expenses (with family).	Earn more than family expenses.	Wages of wife or children required.	Savings bank account.	Saved earnings.	Own a home.	Estimated value of home.	Home incumbered.
5,089	....	..	.....	.....	.....	.....	.....	no	....	no	no	yes	.....	yes
5,948	yes	2	$485	.....	$485	.....	$300	yes	....	yes	yes	....	.....	....
6,215	yes	2	200	.....	200	.....	200	no	....	no	no	....	.....	....
7,574	no	..	.....	.....	.....	.....	.....	.....	....	no	yes	....	.....	....
8,753	no	..	.....	.....	.....	.....	.....	.....	....	yes	yes	yes	$1,850	no
9,745	....	..	.....	.....	.....	.....	.....	.....	....	....	....	....	.....	....
10,153	no	..	486	.....	486	.....	.....	no	no	no	no	....	.....	....

BOOKBINDERS.

TABLE 28 (CONCLUDED).—*Showing individual earnings, income, etc.*

3,677	no	..	$800	.....	$800	$300	.....	.....	....	yes	yes	yes	.....	....
3,828	....	..	600	.....	600	.....	.....	no	yes	yes	no	yes	.....	yes
4,466	no	..	750	$150	900	.....	$900	no	....	.....	....	no	.....	....
6,771	no	..	800	.....	.....	312	.....	....	....	yes	yes	no	.....	....

BOOKKEEPERS.

TABLE 29 (CONCLUDED).—*Showing individual earnings, income, etc.*

57	no	..	.....	.....	$650	.....	.....	yes	no	yes	yes	yes	$4,000	yes
773	no	..	$1,000	.....	1,000	.....	$740	yes	no	no	yes	yes	2,000	yes
2,465	....	..	375	.....	.....	.....	.....	.....	....	yes	no	yes	3,000	no
3,610	no	..	900	$25	925	$600	.....	yes	....	no	yes	no	.....	....
3,765	no	..	550	100	650	.....	650	no	....	no	no	no	.....	....
4,588	....	..	500	300	800	.....	800	no	....	no	no	no	.....	....
4,700	no	..	300	500	800	.....	800	no	....	yes	no	no	.....	....
4,870	no	..	600	.....	600	.....	450	yes	....	yes	yes	no	.....	....
6,090	yes	3	702	.....	702	.....	400	yes	....	yes	yes	no	.....	....
7,004	no	..	400	.....	.....	.....	.....	.....	....	.....	....	no	.....	....
8,091	no	..	338	.....	338	200	.....	yes	....	yes	yes	no	.....	....
8,170	no	..	.....	.....	.....	350	.....	yes	....	yes	yes	no	.....	....
9,012	yes	10	236	.....	236	175	.....	yes	....	yes	yes	no	.....	....
9,026	no	..	800	132	932	.....	750	yes	....	no	yes	yes	4,500	no
9,813	no	..	.....	.....	.....	.....	.....	yes	....	yes	yes	yes	3,000	no

INDIVIDUAL REPORTS.

BLACKSMITHS.

Showing home conditions, board per week with room, number of fraternal orders connected with, amount yearly dues, weekly benefits, death benefits, trade union, etc.

Ins. against fire.	No. rooms occ'p'd.	Sanitary condition of home.	Occupy tenement.	Monthly rent.	No. rooms occ'p'd.	Sanitary condition of tenement.	Board per week, including room.	Keep account of living expenses.	Take books from public library.	No. fra't'l orders.	Am't yearly dues, assessments, etc.	Weekly benefits.	Death benefits payable to family.	Belong to trade union.
es	7	good	no	.....	..	.....	.....	no	yes	1	$4.00	$5.00	$50	no
....	..	.....	yes	$12.00	6	poor	.....	no	yes	5	14.00	7.00	50	no
....	..	.....	.....	.....	..	.....	$3.50	.....	.....	..	.....	.....	.....	no
....	..	.....	yes	9.00	4	good	.....	.....	yes	1	15.00	4.00	2,000	no
yes	8	good	no	.....	..	.....	.....	no	yes	1	4.00	.....	.....	no
....	..	.....	yes	5.00	5	good	.....	no	no	..	.....	.....	.....	no
....	..	.....	yes	8.33	7	.....	.....	no	no	..	.....	.....	.....	no

BOOKBINDERS.

Showing home conditions, fraternal statistics, etc.

....	..	.....	no	.....	..	.....	$4.50	no	no	1	$12.00	$5.00	$500	no
no	7	good	no	.....	..	.....	.....	no	no	..	.....	.....	.....	no
....	..	.....	yes	$10.00	5	poor	.....	.....	.....	..	.....	.....	.....	
....	2	good	.....	.....	..	.....	5.00	yes	.....	..	.....	.....	.....	no

BOOKKEEPERS.

Showing home conditions, fraternal statistics, etc.

yes	..	good	no	.....	..	.....	.....	no	no	3	$30.00	$14.00	$1,500	no
yes	9	good	no	.....	..	.....	.....	yes	no	3	60.00	46.00	11,000	no
yes	..	good	no	.....	..	.....	.....	no	no	1	4.00	.....	2,000	no
....	..	.....	.....	.....	..	.....	$5.75	no	no	1	2.00	.....	.....	no
....	..	.....	.....	.....	..	.....	.....	no	no	5	30.00	15.00	200	no
....	6	.....	yes	$15.00	6	good	.....	no	no	2	18.00	.....	.....	no
....	..	.....	yes	16.67	6	good	.....	yes	yes	1	5.00	3.00	.....	no
....	..	.....	yes	12.50	7	good	.....	yes	yes	..	.....	.....	.....	no
....	..	.....	.....	.....	..	.....	3.75	no	yes	4	15.00	5.00	50	no
....	..	.....	.....	.....	..	.....	4.00	no	yes	..	.....	.....	.....	no
....	..	.....	.....	.....	..	.....	3.00	no	yes	..	.....	.....	.....	no
....	..	.....	.....	.....	..	.....	4.25	no	yes	..	.....	.....	.....	no
....	..	.....	.....	.....	..	.....	.....	yes	yes	..	.....	.....	.....	no
yes	8	good	no	.....	..	.....	.....	yes	yes	..	.....	.....	.....	no
yes	7	good	no	.....	..	.....	.....	yes	yes	4	34.00	9.00	2,100	no

INDIVIDUAL REPORTS.

BOX MAKERS.

TABLE 30.—*Showing branch of occupation in which engaged, birthplace of person reporting, nationality of father and mother, married or single, etc.*

Blank number.	Branch of occupation.	Birthplace.	Nationality of father.	Nationality of mother.	Mar., single, wid.	Children in family.
1,981	Box maker....	Maine.....	Scotch.....	Irish.....	S.	
1,990	Box maker....	Vermont.....	American.....	American....	S.	
2,367	Box maker....	New Jersey.....	American.....	American....	M.	
2,416	Till maker.....	New Hampshire.	American.....	American....	M.	
3,882	Box maker....	Massachusetts..	American.....	American....	M.	
3,971	Box maker....	Canada	Canadian.....	Canadian.....	M.	
4,110	Shipper.....	Vermont.....	American.....	Canadian.....	M.	
7,269	Box maker....	New Hampshire.	American.....	Canadian.....	M.	3
7,936	Planer.....	Massachusetts...	American.....	American....	M.	5
8,603	Box maker....	Vermont.....	American.....	American....	M.	
8,980	Crate maker...	New Hampshire.	American.....	American....	M.	
9,004	Box maker....	Sweden.....	Swede.....	Swede.....	M.	2
9,490	Foreman.....	New Hampshire.	American.....	American....	M.	1

BRASS WORKERS.

TABLE 31.—*Showing branch o occupation, etc.*

6,917	Brass worker..	Massachusetts..	American.....	American....	M.	1
7,106	Finisher.....	New Hampshire.	American.....	American...	M.	
8,130	Finisher.....	Maine.....	Irish.....	Irish	M.	1
8,451	Finisher.....	New Hampshire.	American.....	American....	M.	3
8,889	Polisher.....	New Hampshire.	American.....	American....	S.	
9,634	Finisher.....	Maine.....	American.....	American....	M.	

CABINET MAKERS.

TABLE 32.—*Showing branch of occupation, etc.*

564	Furniture.....	New Hampshire.	American.....	American....	M.	2
896	Case maker....	Massachusetts..	American.....	American....	M.	
897	Table maker...	New Hampshire.	American.....	American....	M.	5
1,062	Cribs, etc.....	New Hampshire.	American.....	American....	M.	1
1,091	Machine cutter	Massachusetts..	American.....	American....	M.	1

INDIVIDUAL REPORTS.

BOX MAKERS.

Showing school conditions, age began work, years in occupation, hours employed weekly, number of days unemployed and cause of non employment, wage conditions, etc.

No. at school.	Weeks at school.	Dependent in fam.	Age began work.	Yrs. in occupation	With employer.	Hours weekly.	Hours Saturday.	Days unemployed during year.	Cause of non-employment.	Wages per week.	Wages decreased.	Weekly reduction.	Wages paid.
..	..	..	13	2	2	59	5	....	.....	$12.00	no	.....	Weekly.
..	..	..	13	7	7	60	6	....	.....	12.00	no	.....	Weekly.
..	..	2	14	3	3	60	10	....	.....	12.00	....	.....	Weekly.
..	..	3	18	10	10	60	10	163	.....	7.00	no	.....	Monthly.
..	..	2	21	3	3	60	10	....	.....	10.50	yes	$1.50	Weekly.
..	..	2	10	1	1	60	10	120	No work	6.00	....	.....	
..	..	2	10	9	11	60	10	52	Sickness	9.00	no	.....	Weekly.
1	36	5	14	4	4	54	9	38	Sickness	9.00	no	.....	Weekly.
4	36	6	12	12	1	60	10	10	Sickness	8.00	no	.....	Weekly.
..	..	2	8	10	10	60	10	60	Sickness	8.00	no	.....	Weekly.
..	..	2	10	12	1	59	9	....	.....	6.00	no	.....	
..	..	4	..	2	2	60	10	60	No work	8.00	no	.....	Monthly.
1	36	3	15	19	5	60	10	11	Vacation.....	12.00	no	.....	Monthly.

BRASS WORKERS.

Showing school conditions, age began work, etc.

1	36	3	16	23	1	60	10	60	No work	$9.00	yes	$6.00	Weekly.
..	..	2	12	7	4	59	9	....	.....	8.00	yes	1.00	Weekly.
..	..	3	19	5	5	59	9	6	.....	8.00	yes	1.00	Weekly.
1	40	5	10	2	2	59	9	50	Sickness	6.50	yes	.50	Weekly.
..	..	2	15	6	6	59	9	12	No work	9.00	yes	3.50	Weekly.
..	..	2	12	8	4	59	9	26	Sickness	7.50	yes	3.00	Weekly.

CABINET MAKERS.

Showing school conditions, age began work, etc.

1	..	4	..	7	7	60	10	....	.....	$10.50	no	.....	Fortnightly.
..	..	2	20	12	12	60	10	60	Sickness	10.00	no	.....	Weekly.
2	30	4	14	28	28	58	8	60	Sickness and vacation...	8.00	yes	$1.00	Fortnightly.
1	..	3	5	29	14	57	9	20	Vacation.....	9.00	no	.....	Monthly.
1	..	3	..	6	6	60	10	100	No work	10.50	yes	1.00	Monthly.

INDIVIDUAL REPORT.

BOX MAKERS.

TABLE 30 (CONCLUDED).—*Showing individual earnings, income from other sources and total income, living expenses, savings account, home conditions, etc.*

Blank number.	Wages withheld.	No. days' pay.	Individual earnings of self during year.	Income from other sources	Total income.	Living expenses (single).	Living expenses (with family).	Earn more than family expenses.	Wages of wife or children required.	Savings-bank account.	Saved earnings.	Own a home.	Estimated value of home.	Home incumbered
1,981	yes	4	.....	.....	.....	.....	.....	....	....	yes	yes	....	.....	....
1,990	no	..	$600	$100	$700	$400	.....	....	....	no	yes	no	.....	...
2,367	no	..	.....	.....	.....	.....	.....	....	....	....	....	yes	$2,000	yes
2,416	no	..	170	35	205	.....	.....	no	yes	....	....	no	.....	....
3,882	yes	6	.....	.....	.....	.....	$400	no	....	no	no	no	.....	....
3,971	no	..	180	300	480	.....	350	....	yes	no	no	no	.....	....
4,110	yes	1	391	.....	391	.....	.....	yes	.. .	yes	yes	yes	2,000	no
7,269	no	..	400	.....	400	.....	.....	no	....	no	no	no	.....	....
7,936	no	..	250	50	300	.....	.....	no	yes	no	no	yes	2,500	yes
8,603	no	..	350	40	390	.....	.....	yes	....	no	yes	no	.....	....
8,980	....	..	456	.....	456	.....	.....	no	....	no	no	no	.....	....
9,004	yes	15	.....	.....	.....	.....	.....	.....	yes	no	no	....	.....	....
9,490	yes	5	600	.....	600	.....	.....	yes	....	no	yes	yes	500	yes

BRASS WORKERS.

TABLE 31 (CONCLUDED).—*Showing individual earnings, income, etc.*

6,917	no	..	.....	.....	.....	.....	.....	no	....	no	no	yes	$1,500	yes
7,106	....	..	.....	.....	.....	.....	.....	no	....	no	no	no	.....	....
8,130	no	..	.....	.....	.....	.....	.....	no	yes	yes	no	no	.....	....
8,451	no	..	$300	$10	$310	.....	$400	no	yes	no	no	no	.....	....
8,889	yes	..	.....	.....	.....	.....	.....	.....	.....	yes	yes	no	.....	....
9,634	yes	..	.....	.....	.....	.....	.....	no	....	no	no	no	.....	....

CABINET MAKERS.

TABLE 32 (CONCLUDED).—*Showing individual earnings, income, etc.*

564	yes	7	.....	.....	.....	.....	.....	yes	....	no	yes	yes	.....	no
896	no	..	.....	.....	.....	.....	.....	....	....	no	no	no	.....	....
897	yes	7	$450	$150	$600	.....	$600	no	....	no	no	yes	.....	yes
1,062	no	..	421	250	671	.....	450	yes	yes	no	yes	yes	$800	no
1,091	no	..	350	25	375	.....	375	no	yes	no	no	no	.....	....

INDIVIDUAL REPORTS.

BOX MAKERS.

Showing home conditions, board per week with room, number of fraternal orders connected with, amount yearly dues, weekly benefits, death benefits, trade union, etc.

Ins. against fire.	No. rooms occ'p'd.	Sanitary condition of home.	Occupy tenement.	Monthly rent.	No. rooms occ'p'd	Sanitary condition of tenement.	Board per week, including room.	Keep account of living expenses.	Take books from public library.	No. frat'l orders.	Am't yearly dues, assessments, etc.	Weekly benefits.	Death benefits payable to family.	Belong to trade union.
....	..	.....	no	.....	..	.....	$4.00	.....	.....	1	$4.00	$5.00	$30	no
....	..	.....	no	.....	..	.....	5.00	no	no	1	2.00	.....	.....	no
yes	7	good	.....	.....	..	.....	.....	no	no	2	40.00	25.00	2,025	no
....	..	.....	.....	.....	..	.....	.....	.....	.....	..	.....	.....	.....	no
....	..	.....	.....	.....	..	.....	7.00	yes	yes	2	38.00	.....	2,000	no
....	..	.....	yes	$5.00	3	poor	.....	no	no	..	.....	.....	.....	no
yes	5	good	no	.....	..	.....	.....	no	no	3	56.00	32.00	2,000	no
....	..	.....	yes	6.00	4	good	.....	no	yes	..	.....	.....	.....	no
yes	7	good	no	.....	..	.....	.....	.....	yes	1	34.00	.....	2,000	no
....	..	.....	.....	.....	..	.....	.....	.....	yes	1	30.00	.....	2,000	no
....	..	.....	yes	7.00	7	fair	.....	yes	no	1	3.00	.....	.....	no
....	..	.....	yes	7.00	4	good	.....	.....	no	..	.....	.....	.....	no
yes	5	good	yes	8.00	7	good	.....	no	yes	..	.....	.....	.....	no

BRASS WORKERS.

Showing home conditions, fraternal statistics, etc.

yes	6	good	yes	$12.00	6	good	.....	no	no	3	$40.00	$5.00	$3,000	no
....	..	.....	yes	7.00	4	good	.....	no	no	1	6.00	5.00	100	no
....	..	.....	yes	8.50	4	good	.....	no	no	..	.....	.....	.....	no
....	..	.....	yes	8.34	4	good	.....	no	no	1	18.00	.....	200	no
....	..	.....	.....	.....	..	.....	$4.00	no	yes	1	5.00	5.00	.....	no
....	..	.....	yes	12.00	6	fair	.....	yes	no	1	5.00	5.00	50	no

CABINET MAKERS.

Showing home conditions, fraternal statistics, etc.

no	8	good	no	.....	..	.....	.....	no	no	4	$18.00	$3.00	$1,065	no
....	..	.....	.....	.....	..	.....	.....	no	no	4	9.00	2.00	50	no
yes	6	good	no	.....	..	.....	.....	yes	yes	4	10.00	10.00	25	no
yes	6	good	no	.....	..	.....	.....	yes	yes	3	10.00	15.00	3,150	no
....	..	.....	yes	$7.00	5	fair	.....	no	yes	1	10.00	.....	1,000	no

INDIVIDUAL REPORTS.

CABINET MAKERS.

TABLE 32 (CONTINUED).—*Showing branch of occupation in which engaged, birthplace of person reporting, nationality of father and mother, married or single, etc.*

Blank number.	Branch of occupation.	Birthplace.	Nationality of father.	Nationality of mother.	Mar., single, wid.	Children in family.
1,766	Table maker...	New Hampshire.	English.....	Irish.....	M.	3
2,716	Table maker...	New Hampshire.	American.....	American....	M.	1
2,908	Cabinet maker	England.....	English.....	English.....	M.	1
5,960	Table maker...	New Hampshire.	American.....	American....	M.	
6,766	Journeyman...	Ireland.....	Irish.....	Irish.....	M.	8
7,960	Journeyman...	Vermont.....	American.....	American....	W.	
8,907	Chair maker...	Vermont.....	American.....	American...	M.	1
8,999	Chair maker...	Massachusetts..	American.....	American....	M.	3
9,039	Chair maker...	Massachusetts..	American.....	American....	M.	
9,100	Journeyman...	New Hampshire.	American.....	American....	S.	
9,124	Wood turner..	New Hampshire.	American.....	American....	M.	
9,149	Finisher.....	New Hampshire.	American.....	American....	M.	1
9,323	Foreman.....	New York.....	French.....	French.....	M.	1
9,408	Chair maker...	New Hampshire.	American.....	American....	M.	2
9,754	Carver.....	New Hampshire.	American.....	American....	M.	4
9,811	Journeyman...	New York.....	French.....	German.....	M.	
9,821	Ornamenter...	Massachusetts..	American.....	American....	M.	1
9,896	Chair seater...	New Hampshire.	American.....	American....	S.	
9,983	Superintend'nt	New Hampshire.	American.....	American....	M.	1

CARPENTERS.

TABLE 33.—*Showing branch of occupation in which engaged, etc.*

625	Carpenter.....	New Hampshire.	American.....	American....	M.	4
634	Jobber.....	Maine.....	American.....	American....	M.	3
1,307	Carpenter.....	New Hampshire.	American.....	American....	S.	
1,345	Carpenter.....	New Hampshire.	American.....	American....	S.	
1,406	Carpenter.....	New Hampshire.	American.....	American....	M.	2
1,548	Carpenter.....	New Hampshire.	American.....	American....	M.	1
1,856	Carpenter.....	New York.....	American.....	American....	M.	1
2,489	Carpenter.....	New Hampshire.	American.....	American....	M.	
2,712	Carpenter.....	New Hampshire.	American.....	American....	M.	1
2,834	Carpenter.....	New Hampshire.	American.....	American....	S.	

INDIVIDUAL REPORTS.

CABINET MAKERS.

Showing school conditions, age began work, years in occupation, hours employed weekly, number of days unemployed and cause of non-employment, wage conditions, etc.

No. at school.	Weeks at school.	Dependent in fam.	Age began work.	Yrs. in occupation.	With employer.	Hours weekly.	Hours Saturday.	Days unemployed during year.	Cause of non-employment.	Wages per week.	Wages decreased.	Weekly reduction.	Wages paid.
2	36	5	9	10	10	60	10	....	.....	$10.00	no	.....	Monthly.
1	36	3	15	13	13	55	5	....	.....	10.50	no	.....	Weekly.
1	38	3	8	26	26	60	8	....	.....	8.50	....	.....	Weekly.
..	..	2	9	35	1	55	5	123	No work	7.00	yes	$1.50	Weekly.
6	..	8	12	24	24	60	10	285	Business failure.....	12.00	no	.....	
..	..	..	9	14	13	59	9	50	Boiler explosion.....	12.00	yes	1.25	Monthly.
..	..	3	15	4	4	59	9	40	No work	9.00	yes	1.00	Monthly.
1	36	4	16	15	15	50	..	50	Vacation.....	10.50	yes	1.75	Monthly.
..	..	2	..	23	23	59	9	60	Boiler explosion.....	12.00	yes	1.25	Monthly.
..	..	..	13	6	3	59	9	100	Boiler explosion, etc.....	9.00	yes	1.00	Monthly.
..	..	6	15	33	26	59	9	60	Boiler explosion, etc.....	18.00	yes	2.00	Monthly.
..	..	3	15	6	3	59	9	60	Boiler explosion, etc.....	10.00	yes	1.25	Monthly.
1	36	3	12	31	7	59	9	....	.....	24.00	yes	2.50	Monthly.
1	30	4	12	20	5	59	9	60	Boiler explosion, etc.....	.....	yes	1.50	Monthly.
1	39	6	..	7	7	50	..	40	Vacation.....	.....	yes	3.00	Monthly.
..	..	2	8	27	22	59	9	....	.....	10.00	yes	1.25	Monthly.
..	..	3	10	24	7	60	10	50	Shutdown.....	.....	yes	1.50	Monthly.
..	..	..	16	8	1	60	10	50	.....	.....	yes	1.00	Weekly.
1	36	3	16	11	11	60	10	4	Sickness	25.00	no	.....	Monthly.

CARPENTERS.

Showing school conditions, age began work, etc.

2	36	6	17	..	..	60	10	90	No work.	$9.00	no	.....	Weekly.
1	23	5	13	11	11	60	10	12	Sickness	10.50	no	.....	Monthly.
..	..	..	..	15	1	60	10	....	.....	.....	....	.....	
..	..	..	17	3	3	60	10	....	.....	10.50	no	.....	
1	40	4	12	7	..	60	10	12	Sickness	15.00	....	.....	
1	40	3	19	11	4	60	10	....	Sickness	11.50	yes	.....	Fortnightly.
..	..	3	16	9	1	60	10	50	Sickness	10.50	no	.....	Weekly.
..	..	2	9	2	1	60	10	225	Sickness and no work....	10.50	yes	$1.50	Weekly.
..	..	3	14	3	3	60	10	175	No work.....	10.50	no	.....	Weekly.
..	..	..	7	4	1	60	10	100	No work.....	12.00	no	.....	Weekly.

INDIVIDUAL REPORTS.

CABINET MAKERS.

TABLE 32 (CONTINUED).—*Showing individual earnings, income from other sources and total income, living expenses, savings account, home conditions, etc.*

Blank number.	Wages withheld.	No. days' pay.	Individual earnings of self during year.	Income from other sources.	Total income.	Living expenses (single).	Living expenses (with family).	Earn more than family expenses.	Wages of wife or children required.	Savings bank account.	Saved earnings.	Own a home.	Estimated value of home.	Home incumbered.
1,766	yes	10	$488	$80	$568	.....	$480	yes	....	yes	yes	no	.....	....
2,716	yes	3	450	.....	450	.....	450	no	....	no	no	no	.....	...
2,908	yes	3	.....	.....	.....	.....	.....	yes	....	....	no	yes	$1,200	yes
5,960	no	..	268	.....	268	.....	268	no	no	yes	no	yes	1,000	no
6,766	....	..	.....	.....	.....	.....	.....	no	yes	no	no	yes	1,200	no
7,960	yes	10	462	.....	462	$300	.....	yes	....	yes	no	no	.....	....
8,907	yes	15	378	.....	378	.....	378	no	....	yes	no	no	.....	....
8,999	yes	9	450	.....	450	.....	.....	....	....	yes	no	no	.....	....
9,039	yes	10	600	.....	600	.....	.....	....	....	....	....	yes	2,100	yes
9,100	yes	10	307	96	403	.....	210	yes	....	yes	yes	yes	2,200	yes
9,124	yes	10	720	.....	720	.....	.....	yes	no	yes	yes	yes	2,500	no
9,149	yes	10	425	.....	425	.....	.....	no	....	yes	yes	no	.....	....
9,323	yes	15	1,200	.....	1,200	.....	1,000	yes	....	no	yes	no	.....	....
9,408	no	..	450	.....	450	.....	500	no	...	yes	no	no	.....	....
9,754	yes	15	550	.....	550	.....	550	no	....	no	no	yes	1,500	yes
9,811	yes	10	500	200	700	.....	.....	....	....	no	no	yes	1,800	yes
9,821	yes	15	650	206	856	.....	856	no	....	yes	no	yes	1,000	yes
9,896	....	..	270	.....	270	.....	270	no	....	no	no	no	.....	....
9,983	no	..	1,200	200	1,400	.....	900	yes	....	yes	yes	yes	4,000	no

CARPENTERS.

TABLE 33 (CONCLUDED).—*Showing individual earnings, income, etc.*

625	no	..	$330	.....	$330	.....	$330	no	yes	no	no	no	.....	....
634	no	..	.....	.....	.....	.....	.....	yes	....	yes	yes	yes	$1,400	no
1,307	....	..	.....	.....	1,200	$300	.....	yes	....	no	yes	yes	4,000	no
1,345	no	..	.....	.....	.....	.....	.....	yes	....	yes	yes	no	.....	....
1,406	....	..	.....	.....	.....	.....	.....	yes	....	no	yes	no	.....	....
1,548	no	..	575	.....	575	.....	.....	no	....	no	no	no	.....	....
1,856	no	..	.....	.....	.....	.....	.....	yes	....	yes	yes	no	.....	....
2,489	no	..	300	145	445	.....	650	no	yes	yes	no	no	.....	....
2,712	no	..	.....	.....	.....	.....	.....	no	no	no	no	no	.....	....
2,834	no	..	.....	.....	.....	.....	.....	....	....	....	....	no	.....	....

INDIVIDUAL REPORTS.

CABINET MAKERS.

Showing home conditions, board per week with room, number of fraternal orders connected with, amount yearly dues, weekly benefits, death benefits, trade union, etc.

Ins. against fire.	No. rooms occ'p'd.	Sanitary condition of home.	Occupy tenement.	Monthly rent.	No. rooms occ'p'd.	Sanitary condition of tenement.	Board per week, including room.	Keep account of living expenses.	Take books from public library.	No. fra'l orders.	Am't yearly dues, assessments, etc.	Weekly benefits.	Death benefits payable to family.	Belong to trade union.
....	..	.....	yes	$8.00	6	good	.....	no	no	3	$21.00	$16.00	$1,500	no
....	..	.....	yes	8.50	6	good	.....	no	no	..	.....	.....	.....	no
yes	6	good	no	.....	..	.....	.....	no	yes	1	10.00	3.00	50	no
yes	7	good	no	.....	..	.....	.....	no	no	1	4.00	2.00	30	no
yes	7	good	no	.....	..	.....	.....	no	yes	..	.....	.....	.....	no
....	..	.....	.....	.....	..	.....	$5.75	no	no	..	.....	.....	.....	no
....	..	.....	yes	7.00	4	bad	.....	no	no	1	.....	2.00	100	no
....	..	.....	yes	8.50	6	good	.....	yes	yes	1	.....	5.00	1,000	no
yes	8	good	no	.....	..	.....	.....	no	yes	1	12.00	.....	1,000	no
yes	..	.....	no	.....	..	.....	3.50	no	yes	1	18.00	2.00	2,000	no
yes	8	good	no	.....	..	.....	.....	no	yes	3	15.00	9.00	3,000	....
....	..	.....	yes	9.50	5	poor	.....	yes	yes	..	.....	.....	.....	no
....	..	.....	yes	15.00	8	good	.....	yes	yes	1	4.50	3.00	.....	no
....	..	.....	yes	12.50	7	good	.....	no	yes	2	12.00	2.00	100	no
yes	8	good	no	.....	..	.....	.....	.....	yes	1	17.00	.....	2,000	no
yes	7	good	no	.....	..	.....	.....	no	yes	1	2.00	.....	.....	no
yes	6	good	no	.....	..	.....	.....	no	yes	3	32.00	3.00	100	no
....	..	.....	.....	.....	..	.....	.....	.....	no	..	.....	.....	.....	no
yes	7	good	no	.....	..	.....	.....	no	no	..	.....	.....	.....	no

CARPENTERS.

Showing home conditions, fra'ernal statistics, etc.

....	..	.....	yes	$3.00	4	good	.....	no	yes	..	.....	.....	.....	no
yes	8	good	no	.....	..	.....	.....	yes	yes	..	.....	.....	.....	no
yes	5	good	no	.....	..	.....	.....	yes	yes	..	.....	.....	.....	no
....	..	.....	.....	.....	..	.....	$3.50	no	yes	1	.....	.....	.....	no
....	..	.....	yes	.....	7	good	.....	no	yes	1	$4.00	$2.00	$40	no
....	..	.....	yes	12.50	6	good	.....	no	no	..	.....	.....	.....	no
....	..	.....	.....	.....	..	.....	.....	no	yes	3	34.00	15.00	2,100	no
....	..	.....	yes	14.00	7	fair	.....	yes	yes	5	65.00	3.00	2,800	no
....	..	.....	yes	6.00	5	fair	.....	no	.....	3	7.00	2.00	30	no
....	..	.....	.....	.....	..	.....	5.00	no	.....	..	.....	.....	.....	no

INDIVIDUAL REPORTS.

CARPENTERS.

TABLE 33 (CONTINUED).—*Showing branch of occupation in which engaged, birthplace of person reporting, nationality of father and mother, married or single, etc.*

Blank number.	Branch of occupation.	Birthplace.	Nationality of father.	Nationality of mother.	Mar., single, wid.	Children in family.
3,040	Carpenter	New Hampshire.	Canadian	American	S.	
3,562	Carpenter	New Hampshire.	American	American	M.	1
4,010	Carpenter	Ireland	Irish	Irish	S.	
5,100	Carpenter	Maine	American	American	M.	3
7,101	Carpenter	New Hampshire.	American	American	M.	3
7,393	Carpenter	Maine	American	American	M.	2
9,454	Carpenter	New Hampshire.	American	English	S.	

CARRIAGE MAKERS.

TABLE 34.—*Showing branch of occupation, birthplace, etc.*

2,522	Painter	Maine	American	American	W.	
3,574	Spring maker	Massachusetts	American	American	M.	
4,417	Body maker	Connecticut	American	American	M.	
4,481	Wheelwright	New Hampshire.	American	American	S.	
4,726	Builder	Massachusetts	American	American	M.	2
4,796	Blacksmith	Province Quebec	Canadian	Canadian	M.	1
5,374	Body maker	New Hampshire.	American	American	M.	
5,477	Wood-worker	New Hampshire.	American	American	M.	2
5,789	Trimmer	Maine	American	English	M.	3
6,408	Wheelwright	Maine	American	American	S.	
6,762	Wheelwright	New Hampshire.	American	American	M.	2
8,569	Wood worker	New Hampshire.	American	American	M.	
9,378	Wood worker	Canada	Canadian	Canadian	M.	
9,852	Wood worker	Vermont	American	American	M.	

CIGAR MAKERS.

TABLE 35.—*Showing branch of occupation, birthplace, etc.*

454	Cigar maker	New Hampshire.	Irish	Irish	S.	
492	Cigar maker	United States	Irish	Irish	M.	2
1,612	Cigar maker	Canada	Canadian	Canadian	S.	
1,865	Cigar maker	Germany	German	German	M.	4
2,949	Cigar maker	Ohio	American	American	S.	

INDIVIDUAL REPORTS.

CARPENTERS.

Showing school conditions, age began work, years in occupation, hours employed weekly, number of days unemployed and cause of non-employment, wage conditions, etc.

No. at school.	Weeks at school.	Dependent in fam.	Age began work.	Yrs. in occupation.	With employer.	Hours weekly.	Hours Saturday.	Days unemployed during year.	Cause of non-employment.	Wages per week.	Wages decreased.	Weekly reduction.	Wages paid.
..	..	..	15	3	2	60	10	30	.....	$12.00	no	.....	Weekly.
..	..	4	17	12	12	60	10	....	.....	15.00	yes	$3.00	
..	..	..	10	3	2	60	10	150	No work.....	10.50	yes	1.50	Irregularly.
1	36	4	23	26	2	60	8	30	Sickness	9.00	yes	3.00	Weekly.
3	40	5	17	43	1	54	9	54	No work	15.00	no	.....	Weekly.
..	..	3	10	28	2	54	9	30	.....	15.00	no	.....	Weekly.
..	..	..	14	3	3	60	10	60	No work	9.00	no	.....	Weekly.

CARRIAGE WORKERS.

Showing school conditions, age began work, etc.

..	..	..	14	38	..	..	....	.....	.....	.....	....	.....	
..	..	2	14	13	21	50	..	18	No work.....	$12.00	no	.....	Weekly.
..	..	2	17	52	38	..	..	....	.....	12.00	no	.....	Weekly.
..	..	2	17	4	4	59	9	21	Vacation.....	7.50	no	.....	Monthly.
1	36	4	16	17	17	48	8	200	No work.....	13.50	no	.....	Fortnightly.
..	..	3	12	33	23	60	10	52	No work.....	15.00	no	.....	Fortnightly.
..	..	2	15	42	42	50	..	30	.....	15.00	....	.....	Fortnightly.
..	..	4	15	13	13	60	10	5	Sickness	15 00	no	.....	Monthly.
1	38	6	13	32	15	60	10	60	Sickness and no work....	12.50	no	.....	Monthly.
..	..	..	15	8	8	60	10	10	Sickness	.....	...	.....	
1	..	4	20	25	25	60	10	....	.....	12.00	no	.....	Fortnightly.
..	..	2	13	40	..	60	10	6	Vacation..	.....	....	.....	
..	..	2	18	43	43	48	8	....	.....	9.00	no	.....	
..	..	2	15	45	45	60	10	....	.....	.....	....	.....	

CIGAR MAKERS.

Showing school conditions, age began work, etc.

..	..	..	15	4	1	47	7	150	No work.....	$16.00	yes	$1.75	Weekly.
1	36	4	12	15	2	48	8	....	.....	15.00	no	.....	Weekly.
..	..	..	13	8	2	48	8	30	Vacation.....	15.00	no	.....	Weekly.
3	36	6	10	20	5	48	8	....	.....	14.00	no	.....	Weekly.
..	..	..	18	14	5	48	8	....	Vacation.....	15.00	no	.....	Weekly.

INDIVIDUAL REPORTS.

CARPENTERS.

TABLE 33 (CONCLUDED).—*Showing individual earnings, income from other sources and total income, living expenses, savings account, home conditions, etc.*

Blank number.	Wages withheld.	No. days' pay.	Individual earnings of self during year.	Income from other sources.	Total income.	Living expenses (single).	Living expenses (with family).	Earn more than family expenses.	Wages of wife or children required.	Savings-bank account.	Saved earnings.	Own a home.	Estimated value of home.	Home incumbered
3,040	no	..	$560	.....	$560	$300	.....	.....	....	no	no	no	.....	....
3,652	no	..	.....	.....	.....	.....	.....	yes	....	yes	yes	yes	$3,000	no
4,010	no	..	800	.....	800	800	.....	.....	....	no	no	yes	500	no
5,100	no	..	500	$123	623	.....	$575	.....	yes	.....	.....	.....	.....	.....
7,101	no	..	600	.....	600	.....	600	no	....	yes	no	yes	2,500	no
7,393	no	..	600	150	750	.....	400	yes	....	no	yes	yes	1,500	no
9,454	no	..	400	.....	400	400	.....	.....	....	no	no	no	.....	....

CARRIAGE WORKERS.

TABLE 34 (CONCLUDED).—*Showing individual earnings, income, etc.*

2,522	.....	..	.....	.....	.....	.....	.....	.....	....	yes	yes	no	.....	....
3,574	yes	6	.....	.....	.....	.....	.....	yes	....	yes	no	yes	$1,200	no
4,417	yes	6	.....	.....	.....	.....	.....	no	....	yes	no	yes	.....	no
4,481	no	..	$418	.....	.....	.....	.....	yes	....	no	....	....	.....	....
4,726	yes	6	135	$200	$335	..	...	no	....	no	no	yes	2,400	yes
4,796	no	..	600	60	660	.....	$660	no	....	no	no	yes	2,600	no
5,374	.....	..	.....	.....	.....	.....	.....	.....	....	yes	yes	yes	2,500	yes
5,477	yes	15	600	.....	600	.....	.....	no	....	no	....	....	.....	....
5,789	yes	10	550	.....	550	.....	.....	no	....	no	no	yes	3,000	yes
6,408	....	..	700	.....	700	.....	.....	....	....	....	yes	yes	.....	....
6,762	no	..	500	325	825	.....	.....	no	....	yes	no	yes	2,000	no
8,569	.....	..	.....	.....	.....	.....	.....	.....	....	yes	no	yes	300	no
9,378	no	..	.....	.....	.....	.....	.....	yes	....	.....	.....	....	2,000	yes
9,852	.....	..	400	144	544	.....	.....	.....	....	yes	yes	yes	1,500	no

CIGAR MAKERS.

TABLE 35 (CONCLUDED).—*Showing individual earnings, income, etc.*

454	no	..	$375	$500	$875	$500	.....	yes	....	no	yes	no	.....	....
492	no	..	750	.....	750	.....	.....	.....	....	yes	yes	no	.....	....
1,612	no	..	650	.....	650	260	.....	yes	....	....	....	....	.....	....
1,865	no	..	624	76	700	.....	$700	no	....	no	no	....	.....	....
2,949	no	..	733	.....	733	360	.....	yes	....	yes	yes	no	.....	....

INDIVIDUAL REPORTS.

CARPENTERS.

Showing home conditions, board per week with room, number of fraternal orders connected with, amount yearly dues, weekly benefits, death benefits, trade union, etc.

Ins. against fire.	No. rooms occ'p'd.	Sanitary condition of home.	Occupy tenement.	Monthly rent.	No. rooms occ'p'd.	Sanitary condition of tenement.	Board per week, including room.	Keep account of living expenses.	Take books from public library.	No. fra'l orders.	Am't yearly dues, assessments, etc.	Weekly benefits.	Death benefits payable to family.	Belong to trade union.
....	..	.....	.....	.....	..	.....	$4.50	no	yes	..	.....	.....	.....	no
yes	9	good	no	.....	..	.....	.....	yes	yes	..	.....	.....	.....	no
yes	5	good	no	.....	..	.....	.....	yes	yes	..	.....	.....	.....	no
....	..	.....	yes	$9.50	6	good	.....	yes	yes	..	.....	.....	.....	no
yes	8	good	no	.....	..	.....	.....	no	no	..	.....	.....	.....	no
yes	5	good	no	.....	..	.....	.....	no	no	1	$20.00	.....	$2,000	yes
....	..	.....	.....	.....	..	.....	3.50	no	no	..	.....	.....	.....	no

CARRIAGE WORKERS.

Showing home conditions, fraternal statistics, etc.

....	..	.....	yes	$4.50	6	.....	.....	.....	.....	..	.....	.....	.....	no
yes	5	good	no	.....	..	.....	.....	no	no	1	$16.00	.....	$2,000	no
yes	..	good	no	.....	..	.....	.....	no	no	1	.....	.....	.....	no
....	..	.....	yes	8.00	6	bad	.....	no	yes	..	.....	.....	.....	no
yes	8	good	no	.....	..	.....	.....	no	no	3	45.00	$4.00	2,000	no
yes	9	good	no	.....	..	.....	.....	no	yes	1	40.00	6.00	3,000	no
yes	..	good	no	.....	..	.....	.....	.....	no	1	.....	.....	2,000	no
....	..	.....	yes	10.00	5	good	.....	no	yes	4	25.00	9.00	2,000	no
yes	8	good	no	.....	..	.....	.....	yes	no	3	31.00	2.00	2,000	no
....	..	.....	no	.....	..	.....	$3.50	yes	no	1	33.00	.....	1,000	no
yes	7	good	no	.....	..	.....	.....	no	no	1	.....	7.00	1,000	....
yes	8	good	no	.....	..	.....	.....	no	no	..	.....	.....	.....	no
yes	5	good	.....	.....	..	.....	.....	no	no	..	.....	.....	.....	no
yes	6	good	no	.....	..	.....	.....	yes	yes	1	2.00	.....	.....	no

CIGAR MAKERS.

Showing home conditions, fraternal statistics, etc.

....	..	.....	yes	$6.50	3	good	.....	no	no	1	$5.00	$3.00	.....	no
....	..	.....	yes	15.00	6	good	.....	yes	yes	2	25.00	14.00	$1,000	yes
....	..	.....	no	.....	..	.....	$5.00	no	yes	5	16.00	5.00	.....	yes
....	..	.....	yes	10.00	5	good	.....	yes	yes	3	35.00	14.00	500	yes
....	..	.....	yes	8.00	3	good	.....	yes	yes	1	16.00	5.00	350	yes

INDIVIDUAL REPORTS.

CIGAR MAKERS.

TABLE 35 (CONTINUED).—*Showing branch of occupation in which engaged, birthplace of person reporting, nationality of father and mother, married or single, etc.*

Blank number.	Branch of occupation.	Birthplace.	Nationality of father.	Nationality of mother.	Mar., single, wid.	Children in family.
3,447	Cigar maker...	Scotland.....	Scotch.....	Scotch.....	M.	1
4,595	Cigar mkr.(ap)	Ireland	Irish	Irish	S.	
5,382	Cigar maker...	New York.....	German.....	German	M.	1
5,520	Cigar maker...	Canada	Canadian.....	Canadian	M.	3
5,787	Cigar maker...	Connecticut.....	American.....	American....	M.	3
5,820	Cigar maker...	Netherland.....	German.....	German	M.	1
6,308	Packer.....	Russia	Russian.....	Russian.....	M.	1
8,776	Cigar maker...	New Hampshire.	American.....	American....	M.	1
9,546	Cigar maker...	New Hampshire.	American.....	American....	S.	
10,050	Cigar maker...	Connecticut.....	Irish	American....	S.	

CLERKS.

TABLE 36.—*Showing branch of occupation, birthplace, etc.*

38	Grocery	Maine.....	American.....	American....	M.	3
197	General store.	New Hampshire.	American.....	American....	M.	
326	Clerk.....	New Hampshire.	American.....	American....	S.	
568	Grocery	New Hampshire.	American.....	American....	S.	
771	Grocery	New Hampshire.	American.....	American....	M.	1
1,417	Grocery	New Hampshire.	American.....	American....	M.	1
1,677	Grocery	Ireland	Irish	Irish.....	W.	4
1,912	Clerk....	New Hampshire.	American.....	American....	M.	
2,014	Grocery	New Hampshire.	American.....	American....	M.	
2,176	Bank.....	Vermont.....	American.....	American....	M.	
2,290	Junk.....	Massachusetts ..	American.....	American....	S.	
2,310	Grocery	New Hampshire.	Irish	Irish	S.	
2,322	Furniture.....	Massachusetts ..	American.....	American....	S.	
2,344	Grocery	New Hampshire.	American.....	American....	M.	
2,359	Mailing.....	New Hampshire.	American.....	English	S.	
2,532	Grocery	New Hampshire.	American.....	American....	M.	
2,576	Drug.....	New Hampshire.	American.....	American....	M.	
3,220	Dry goods.....	Quebec	Canadian.....	Canadian	S.	
3,533	Paint store....	New Hampshire.	American.....	American....	S.	
3,889	Grocery	New Hampshire.	American.....	American....	M.	

INDIVIDUAL REPORTS.

CIGAR MAKERS.

Showing school conditions, age began work, years in occupation, hours employed weekly, number of days unemployed and cause of non-employment, wage conditions, etc.

No. at school.	Weeks at school.	Dependent in fam.	Age began work.	Yrs. in occupation	With employer.	Hours weekly.	Hours Saturday.	Days unemployed during year.	Cause of non-employment.	Wages per week.	Wages decreased.	Weekly reduction.	Wages paid.
..	..	3	15	52	2	48	8	48	Sickness	$9.00	no	.....	Weekly.
..	..	..	12	4	1	60	10	....	.....	5.00	no	.....	Weekly.
..	..	3	23	15	6	48	8	40	Sickness	18.00	no	.....	Weekly.
1	36	5	10	15	13	48	8	....	.....	13.00	no	.....	Weekly.
2	..	6	16	22	3	48	8	....	.....	20.00	no	.....	Weekly.
..	..	3	8	33	2	47	7	....	.....	32.00	no	.....	Weekly.
..	..	3	20	9	3	48	8	100	No work	15.00	no	.....	Weekly.
..	..	3	16	..	..	48	8	....	.....	16.00	no	.....	Weekly.
..	..	..	17	6	6	48	8	150	No work	15.00	no	.....	Weekly.
..	..	2	16	11	..	48	8	....	.....	12.00	no	.....	Weekly.

CLERKS.

Showing school conditions, age began work, etc.

2	..	5	18	22	17	73	15	....	.....	$13.50	no	.....	Weekly.
..	..	2	16	4	4	71	14	....	.....	11.00	no	.....	Weekly.
..	..	..	8	1	1	96	16	....	.....	12.00	yes	.....	Weekly.
..	..	..	6	1	1	72	12	....	.....	9.00	no	.....	Weekly.
..	..	3	16	9	7	74	14	14	Vacation	12.00	no	.....	Weekly.
..	..	3	16	4	4	74	14	69	Sickness	9.00	no	.....	Weekly.
4	36	2	12	25	24	68	14	18	Vacation	18.00	no	....	Monthly.
..	..	2	..	10	10	62	12	100	No work	10.00	....	.....	Weekly.
..	..	2	12	18	14	76	16	....	.....	12.00	no	.....	Weekly.
..	..	2	6	10	3	..	..	....	.....	10.00	no	.....	Monthly.
..	..	..	21	10	10	60	10	....	.....	7.00	no	.....	Irregularly.
..	..	..	13	1	1	82	18	....	.....	6.00	yes	$2.50	Weekly.
..	..	2	18	2	2	66	13	14	Vacation	9.00	no	.....	Weekly.
..	..	..	..	12	12	67	14	....	.....	15.00	no	.....	Weekly.
..	..	..	18	4	4	49	9	....	.....	16.00	no	.....	Monthly.
..	..	3	..	2	1	64	14	....	.....	9.00	no	.....	Weekly.
..	..	3	15	2	2	96	16	6	Vacation	11.00	no	.....	Weekly.
..	..	..	12	5	1	75	13	....	.....	8.00	no	.....	Monthly.
..	..	..	18	4	2	78	13	....	.....	6.50	no	.....	Weekly.
..	..	2	15	13	13	74	14	20	Vacation	17.00	no	.....	Weekly.

INDIVIDUAL REPORTS.

CIGAR MAKERS.

TABLE 35 (CONCLUDED).—*Showing individual earnings, income from other sources and total income, living expenses, savings account, home conditions, etc.*

Blank number.	Wages withheld.	No. days' pay.	Individual earnings of self during year.	Income from other sources.	Total income.	Living expenses (single).	Living expenses (with family).	Earn more than family expenses.	Wages of wife or children required.	Savings bank account.	Saved earnings.	Own a home.	Estimated value of home.	Home incumbered
3,447	no	..	.....	.....	.....	.....	.....	....	....	no	no	....	.....	....
4,595	no	..	$260	.....	$260	$260	.....	no	....	no	no	....	.....	....
5,382	no	..	750	.....	750	.....	$700	yes	....	yes	yes	....	.....	....
5,520	no	..	.....	.....	.....	.....	.....	no	....	no	no	....	.....	....
5,787	no	..	900	.....	900	.. ...	900	no	....	no	no	....	.....	....
5,820	....	..	1,129	.....	1,129	.....	850	yes	....	no	yes	no	.....	....
6,308	no	..	500	.....	500	.....	.....	yes	....	yes	no	yes	$3,000	yes
8,776	no	..	832	.....	832	.....	350	yes	....	no	yes	....	.....	....
9,546	no	..	360	.....	360	.....	360	no	....	....	....	....	.....	....
10,050	....	..	600	.....	600	350	.....	....	....	yes	yes	....	.....	....

CLERKS.

TABLE 36 (CONCLUDED).—*Showing individual earnings, income, etc.*

38	no	..	$702	.....	$702	.....	.....	yes	....	yes	yes	no	.....	....
197	no	..	572	.....	572	.....	$550	....	....	no	no	no	.....	....
326	no	..	500	.....	500	$208	.....	yes	....	yes	no	no	.....	....
568	no	..	.....	.....	.....	.....	.....	.....	....	yes	yes	no	.....	....
771	no	..	624	.....	624	.....	.....	yes	no	yes	yes	no	.....	....
1,417	....	..	.....	.....	.....	.....	.....	no	....	....	....	yes	$1,400	no
1,677	no	..	850	$930	1,780	.....	750	yes	....	yes	yes	yes	2,000	no
1,912	no	..	350	125	475	.....	325	yes	....	yes	no	yes	3,000	no
2,014	no	..	624	.....	624	.....	.....	.....	....	yes	yes	yes	3,000	yes
2,176	no	..	504	60	564	.....	500	....	....	yes	yes	yes	3,000	no
2,290	no	..	.....	.....	.....	.....	.....	....	....	....	....	....	.....	....
2,310	...	..	300	.....	300	.....	.....	no	....	no	no	no	.....	....
2,322	no	..	400	150	550	.....	.....	.....	....	yes	yes	....	.....	....
2,344	no	..	765	.....	765	.....	500	yes	....	yes	yes	no	.....	....
2,559	no	..	800	.....	800	500	.....	yes	....	yes	yes	....	.....	....
2,532	no	..	450	.....	450	.....	.....	yes	....	yes	yes	no	.....	...
2,576	no	..	550	.....	550	.....	.....	no	....	yes	no	no	.....	....
3,220	no	..	338	93	431	182	.....	.....	....	yes	yes	....	.....	....
3,533	no	..	340	.....	340	.....	.....	.....	...	no	no	....	.....	...
3,889	no	..	900	360	1,260	.....	.....	yes	....	no	yes	yes	3,500	no

INDIVIDUAL REPORTS.

CIGAR MAKERS.

Showing home conditions, board per week with room, number of fraternal orders connected with, amount yearly dues, weekly benefits, death benefits, trade union, etc.

Ins. against fire.	No. rooms occ'p'd.	Sanitary condition of home.	Occupy tenement.	Monthly rent.	No. rooms occ'p'd.	Sanitary condition of tenement.	Board per week, including room.	Keep account of living expenses.	Take books from public library.	No. frat'l orders.	Am't yearly dues, assessments, etc.	Weekly benefits.	Death benefits payable to family.	Belong to trade union.
....	..	.....	yes	$3.00	3	poor	.....	no	no	1	$14.00	$5.00	$250	yes
....	..	.....	.....	.....	..	.....	$3.00	no	yes	1	10.00	5.00	100	no
....	..	.....	yes	11.00	5	fair	.....	no	.....	1	14.00	5.00	250	yes
....	..	.....	yes	10.00	5	fair	.....	no	yes	1	15.00	5.00	350	yes
....	..	.....	yes	9.00	4	fair	.....	no	no	2	20.00	10.00	.....	yes
....	..	.....	yes	8.00	4	.....	.....	yes	no	4	45.00	20.00	700	yes
yes	..	.....	no	.....	..	.....	.....	no	.....	1	8.00	5.00	.....	yes
....	..	.....	yes	6.00	6	good	.....	no	.....	4	30.00	17.00	500	yes
....	..	.....	.....	.....	..	.....	5.00	no	yes	2	20.00	7.00	100	yes
....	..	.....	.....	.....	..	.....	6.00	no	yes	2	15.00	5.00	350	yes

CLERKS.

Showing home conditions, fraternal statistics, etc.

....	..	.....	no	.....	..	.....	$4.00	no	yes	..	.....	.....	.....	....
....	..	.....	yes	$8.00	5	good	.....	no	yes	1	$5.00	$2.00	.....	no
....	..	.....	.....	.....	..	.....	.....	yes	yes	..	.....	.....	.....	no
....	..	.....	yes	7.50	9	good	.....	no	no	2	50.00	.....	$3,000	no
....	..	.....	yes	8.50	6	fair	.....	no	.....	4	7.00	10.00	2,065	no
yes	..	.....	yes	10.00	5	fair	.....	yes	yes	..	.....	.....	.....	no
yes	8	good	no	.....	..	.....	.....	yes	yes	1	10.00	.....	.....	no
yes	6	good	no	.....	..	.....	.....	yes	yes	1	5.00	4.00	30	no
yes	8	good	no	.....	..	.....	.....	no	yes	1	42.00	12.00	3,000	no
yes	8	good	no	.....	..	.....	.....	yes	.....	.....	.....	.....	.....	no
....	..	.....	.....	.....	..	.....	2.50	no	yes	..	.....	.....	.....	no
....	..	.....	yes	11.00	..	.....	.....	.....	yes	..	.....	.....	.....	no
....	..	.....	.....	.....	..	.....	4.00	.....	.....	.....	.....	.....	.....	no
....	..	.....	yes	.....	8	.....	.....	no	yes	2	8.00	29.00	7,500	no
....	..	.....	.....	.....	..	.....	3.50	yes	yes	..	.....	.....	.....	....
....	..	.....	.....	.....	..	.....	5.00	no	yes	1	3.00	.....	.....	no
....	..	.....	.....	.....	..	.....	.....	.....	.....	2	54.00	20.00	1,000	no
....	..	.....	.....	.....	..	.....	3.50	yes	no	1	11.00	5.00	50	....
....	..	.....	.....	.....	..	.....	.....	.....	.....	2	10.00	5.00	.....	no
yes	9	good	no	.....	..	.....	.....	.....	yes	1	20.00	6.00	1,000	no

INDIVIDUAL REPORTS.

CLERKS.

TABLE 36 (CONTINUED).—*Showing branch of occupation in which engaged, birthplace of person reporting, nationality of father and mother, married or single, etc.*

Blank number.	Branch of occupation.	Birthplace.	Nationality of father.	Nationality of mother.	Mar., single, wid.	Children in family.
4,194	Dry goods...	Vermont.....	American.....	American....	M.	
4,822	Grocery	Maine.....	American.....	American....	M.	2
4,295	Tax.....	Ireland	Irish.....	Irish.....	M.	3
4,809	Grocery.....	New Hampshire	American.....	American....	S.	
5,149	Furniture....	New Hampshire.	American.....	American....	M.	1
5,340	Drapery	Scotland.....	Scotch.....	Scotch.....	M.	5
5,675	Drug	New Hampshire.	American.....	American....	S.	
5,968	Grocery.....	New Hampshire.	American.....	American....	M.	1
6,210	Official.....	New York.....	American.....	American....	M.	
6,695	Delivery	New York.....	American.....	American....	M.	1
6,704	Meat.....	Province Quebec	Canadian.....	Canadian	S.	
6,764	Meat.....	New Hampshire.	American.....	American....	S.	
6,930	Dry goods....	New York.....	Canadian.....	American....	S.	
6,935	Provision.....	Massachusetts ..	American.....	American....	M.	
7,047	Dry goods...	New Hampshire.	American.....	American....	M.	2
7,075	Grocery	Nova Scotia.....	English	American....	S.	
7,454	Grocery.....	New Hampshire.	American.....	American....	M.	2
7,501	Meat.....	New Hampshire.	American.....	American....	S.	
7,996	Office.....	New Hampshire.	American.....	American....	S.	
8,037	Grocery.....	Maine.....	American.....	American....	M.	
8,393	Grocery.....	New Hampshire.	American.....	American....	M.	1
8,840	Factory.....	Maine.....	English	English	M.	2
8,969	Clothing.....	New Jersey.....	American.....	American....	S.	
9,372	Boot & shoe..	New Hampshire.	American.....	American....	S.	
9,399	Hardware ...	New Hampshire.	American.....	American....	M.	
9,410	Grain	New Hampshire.	American.....	American....	M.	
9,505	Grocery.....	New Hampshire.	American.....	American....	M.	3
9,676	Post-office ...	New Hampshire.	American.....	American....	M.	1
9,794	Boot & shoe..	New Hampshire.	American.....	American....	M.	1
9,796	Stationery ...	New Hampshire.	American.....	American....	S.	
10,181	Hotel.....	New York.....	American.....	American....	S.	
10,357	Tinware.....	Vermont.....	American.....	American....	M.	3

INDIVIDUAL REPORTS.

CLERKS.

Showing school conditions, age began work, years in occupation, hours employed weekly, number of days unemployed and cause of non employment, wage conditions, etc.

No. at school.	Weeks at school.	Dependent in fam.	Age began work.	Yrs. in occupation	With employer.	Hours weekly.	Hours Saturday.	Days unemployed during year.	Cause of non-employment.	Wages per week.	Wages decreased.	Weekly reduction.	Wages paid.
..	..	..	19	2	1	62	12	....	.....	$7.50	....	.....	Weekly.
2	..	3	16	15	3	84	15	14	Vacation.....	10.00	no	.....	Weekly.
2	28	6	16	4	4	60	10	....	.....	9.00	no	.....	Weekly.
..	..	..	14	7	7	80	15	....	.....	10.00	no	.....	Weekly.
1	..	3	17	13	13	64	12	12	Vacation.....	18.00	no	.....	Weekly.
4	40	7	9	5	5	62	12	54	Sickness	10.00	no	.....	Weekly.
..	..	..	15	12	8	86	14	....	.....	13.00	no	.....	Monthly.
..	..	3	11	9	5	69	14	....	.....	12.00	no	.....	Weekly.
..	..	2	21	4	1	48	8	12	Vacation.....	18.00	no	.....	Monthly.
..	..	3	16	10	5	69	14	10	Vacation.....	11.00	no	.....	Weekly.
..	..	..	17	11	11	98	18	....	.....	11.00	no	.....	Weekly.
..	..	..	17	1	1	63	13	18	Vacation.....	6.00	yes	$3.50	Weekly.
..	..	..	12	5	5	60	10	24	Vacation.....	5.00	no	.....	Weekly.
..	..	2	14	12	12	65	11	....	.....	.....	no	.....	Weekly.
..	..	5	17	10	10	56	11	30	Vacation.....	9.00	no	.....	Weekly.
..	..	..	14	3	2	58	14	...	.....	9.00	no	.....	Weekly.
1	30	4	10	8	1	80	16	....	.....	12.00	no	.....	Weekly.
..	..	..	19	6	6	70	15	30	Vacation	12.00	no	.....	Weekly.
..	..	..	12	4	4	72	12	26	Vacation.....	6.00	no	.....	Weekly.
..	..	3	12	5	3	82	17	....	.....	11.00	no	.....	Weekly.
1	..	3	20	20	2	74	14	....	.....	10.00	no	.....	Weekly.
1	36	4	18	12	12	54	9	....	.....	20.00	no	.....	Weekly.
..	..	..	18	2	2	62	12	....	.....	7.00	no	.....	Weekly.
..	..	2	12	7	7	69	15	6	Vacation.....	13.00	no	.....	Weekly.
..	..	..	5	..	..	68	13	....	.....	12.00	no	.....	Weekly.
..	..	2	..	4	4	67	12	30	Vacation.....	10.50	no	.....	Monthly.
2	36	5	..	4	1	76	15	....	.....	12.00	yes	2.00	Weekly.
..	..	3	17	5	1	60	8	12	Vacation.....	20.00	no	.....	Monthly.
1	36	3	15	18	18	64	12	13	Vacation.....	11.50	no	.....	Weekly.
..	..	..	14	5	5	82	8	60	Vacation.....	.....	no	.....	Weekly.
..	..	..	..	2	2	96	15	....	....	9.00	no	.....	Quarterly.
1	36	4	16	14	7	64	12	....	.....	13.50	no	.....	Weekly.

INDIVIDUAL REPORTS.

CLERKS.

TABLE 36 (CONCLUDED).—*Showing individual earnings, income from other sources and total income, living expenses, savings account, home conditions, etc.*

Blank number.	Wages withheld.	No. days' pay.	Individual earnings of self during year.	Income from other sources.	Total income.	Living expenses (single).	Living expenses (with family).	Earn more than family expenses.	Wages of wife or children required.	Savings-bank account.	Saved earnings.	Own a home.	Estimated value of home.	Home incumbered
4,194	....	..	.....	.....	.....	$200	.....	....	....	yes	yes	no	.....	....
4,282	no	..	$520	$100	$620	.....	.....	no	yes	no	no	no	.....	....
4,295	no	..	494	200	694	.....	$600	no	yes	no	yes	no	.....	....
4,809	no	..	520	300	820	.....	.....	....	....	yes	yes	no	.....	....
5,149	no	..	1,275	500	1,775	.....	.....	yes	....	yes	yes	yes	$2,000	no
5,340	no	..	430	.....	430	.....	550	no	....	....	....	no	.....	....
5,675	yes	12	676	.....	676	312	.....	yes	....	yes	yes	no	.....	....
5,968	no	..	624	.....	624	.....	.....	....	....	yes	yes	no	.....	....
6,210	no	..	900	60	960	.....	400	yes	....	yes	yes	yes	3,500	no
6,695	no	..	.....	.....	.....	.....	.....	....	....	no	no	....	.....	....
6,704	....	..	572	.....	.....	450	.....	yes	....	....	....	no	.....	....
6,764	no	..	500	.....	500	.....	170	..	....	....	....	no	.....	....
6,930	no	..	300	.....	300	.....	.....	....	....	yes	yes	no	.....	....
6,935	no	..	.....	.....	.....	.....	.....	yes	....	yes	yes	yes	4,500	no
7,047	no	..	445	.....	445	.....	445	no	....	no	no	no	.....	....
7,075	no	..	.....	.....	.....	.....	175	....	....	yes	yes	....	.....	....
7,454	no	..	624	25	649	.....	.....	yes	....	no	no	no	.....	....
7,501	no	..	600	.....	600	600	.....	....	....	....	...	no	.....	....
7,996	....	..	.....	.....	.....	.....	.....	....	....	yes	yes	yes	.....	no
8,037	no	..	572	50	622	.....	.....	no	....	yes	no	no	.....	....
8,393	no	..	500	.....	500	.....	.....	yes	....	yes	yes	yes	2,000	no
8,840	no	..	1,000	100	1,100	.....	.....	yes	....	yes	yes	no	.....	....
8,969	no	..	300	.....	300	250	.....	yes	....	yes	yes	no	.....	....
9,372	no	..	650	.....	650	200	.....	yes	....	....	....	no	.....	....
9,399	....	..	600	.....	600	300	.....	yes	....	yes	yes	....	.....	....
9,410	yes	15	490	.....	490	.....	.....	yes	....	yes	no	yes	.....	no
9,505	no	..	525	24	549	.....	430	yes	....	no	yes	yes	1,000	yes
9,676	no	..	1,000	.....	1,000	.....	.....	yes	....	yes	yes	no	.....	....
9,794	no	..	600	25	625	.....	.....	yes	....	no	yes	yes	1,300	yes
9,796	no	..	126	.....	126	250	.....	....	....	yes	no	no	.....	....
10,181	....	..	250	.....	250	250	.....	no	....	no	no	no	.....	....
10,357	no	..	700	.....	700	.....	.....	yes	....	....	....	yes	.....	no

INDIVIDUAL REPORTS.

CLERKS.

Showing home conditions, board per week with room, number of fraternal orders connected with, amount yearly dues, weekly benefits, death benefits, trade union, etc.

Ins. against fire.	No. rooms occ'p'd.	Sanitary condition of home.	Occupy tenement.	Monthly rent.	No. rooms occ'p'd	Sanitary condition of tenement.	Board per week, including room.	Keep account of living expenses.	Take books from public library.	No. fra'l orders.	Am't yearly dues, assessments, etc.	Weekly benefits.	Death benefits payable to family.	Belong to trade union.
....	..	.....	.....	.....	..	.....	$3.50	.....	yes	..	.....	.....	.....	no
....	..	.....	yes	$10.00	6	good	.....	no	no	..	.....	.....	$1,000	....
....	..	.....	yes	8.00	7	good	.....	yes	yes	2	$20.00	$10.00	150	no
....	..	.....	.....	.....	..	.....	3.50	no	no	..	.....	.....	.....	no
yes	8	good	no	.....	..	.....	.....	no	no	5	100.00	31.00	6,000	no
....	..	.....	yes	10.00	6	good	.....	yes	yes	2	29.00	10.00	500	no
....	..	.....	yes	8.00	2	poor	5.25	no	no	3	12.00	4.00	25	no
....	..	.....	yes	10.00	5	good	.....	no	no	2	21.00	5.00	2,000	no
yes	8	good	no	.....	..	.....	.....	yes	no	..	.....	.....	.....	no
....	..	.....	.....	.....	..	.....	6.00	no	no	2	9.00	6.00	70	no
....	..	.....	.....	.....	..	.....	4.00	.....	yes	1	7.00	5.00	50	no
....	..	.....	.....	.....	..	.....	2.50	no	no	2	10.00	4.00	75	no
....	..	.....	.....	.....	..	.....	.....	no	yes	..	.....	.....	.....	no
yes	..	good	no	.....	..	.....	.....	.....	.....	1	.....	.....	2,000	no
....	..	.....	yes	7.50	6	bad	.....	no	no	..	.....	.....	.....	no
....	..	.....	.....	.....	..	.....	3.00	no	no	1	4.00	.....	.....	no
....	..	.....	yes	10.00	4	good	.....	no	yes	1	6.00	4.00	50	no
....	..	.....	.....	.....	..	.....	4.50	no	no	..	.....	.....	.....	no
yes	10	good	no	.....	..	.....	.....	yes	yes	..	.....	.....	.....	....
....	..	.....	yes	15.00	5	good	.....	no	no	2	4.00	.....	.....	no
yes	8	good	.....	.....	..	.....	.....	no	no	1	10.00	20.00	30	....
....	..	.....	yes	20.00	7	good	.....	no	yes	1	5.00	4.00	1,000	no
....	..	.....	.....	.....	..	.....	2.50	yes	yes	..	.....	.....	.....	no
....	..	.....	.....	.....	..	.....	3.25	no	yes	1	9.00	.....	1,000	no
....	..	.....	.....	.....	..	.....	.....	.....	.....	..	.....	.....	.....	....
yes	8	good	no	.....	..	.....	.....	.....	yes	1	.....	.....	2,000	no
yes	6	good	no	.....	..	.....	.....	yes	yes	2	32.00	2.00	3,000	no
....	..	good	yes	15.00	6	good	.....	no	no	2	8.00	4.00	2,000	no
yes	8	good	no	.....	..	.....	.....	yes	yes	.	.....	.....	.....	no
....	..	.....	.....	.....	..	.....	.....	.....	yes	2	3.00	.....	.....	no
....	..	.....	no	.....	..	.....	.....	no	.....	..	.....	.....	.....	no
yes	7	fair	no	.....	..	.....	.....	no	no	3	11.00	6.00	5,000	no

INDIVIDUAL REPORTS.

COOPERS.

TABLE 37.—*Showing branch of occupation in which engaged, birthplace of person reporting, nationality of father and mother, married or single, etc.*

Blank number.	Branch of occupation.	Birthplace.	Nationality of father.	Nationality of mother.	Mar., single, wid.	Children in family.
614	Pail turner.....	Connecticut.....	American.....	American....	M.	4
767	Head maker...	New Hampshire.	American.....	American...	M.	
2,272	Cooper.....	New Hampshire.	American.....	American....	M.	2
2,936	Cooper.....	Canada	Canadian.....	Canadian	S.	
3,826	Cooper.....	Massachusetts ..	American.....	American....	M.	4
4,416	Barrel maker..	Quebec.....	Canadian.....	Canadian	M.	2
6,431	Cooper.....	New Hampshire.	American.....	American....	S.	
6,480	Barrel maker..	Massachusetts ..	American.....	American....	M.	2
6,542	Cooper.....	Massachusetts ..	American.....	American....	M.	2
6,804	Cooper.....	New Hampshire.	American.....	American....	M.	
6,805	Cooper.....	New Hampshire.	American.....	American....	S.	
7,066	Cooper.....	Nova Scotia.....	Canadian.....	Canadian	M.	10
8,491	Cooper.....	Germany	German.....	German	S.	
8,917	Pail turner.....	New York.....	American.....	American....	M.	12
9,792	Cooper.....	Vermont.....	American.....	American....	M.	1
9,817	Hoop maker...	Vermont.....	American.....	American....	M.	2

CUTLERS.

TABLE 38.—*Showing branch of occupation, birthplace, etc.*

1,019	Cutler.....	Switzerland.....	Swiss.....	Swiss.....	S.	
1,059	Handle maker.	New Hampshire.	American.....	American....	M.	1
1,064	Etcher.....	Maine.....	American.....	English.....	M.	4
1,082	Cutler.....	New Hampshire.	American.....	American....	M.	1
1,107	Foreman.....	New York.....	American.....	American....	M.	3
1,114	Foreman.....	New Hampshire.	American.....	American....	M.	
1,386	Swedger.....	New Hampshire.	American.....	American....	M.	5
1,387	Cutler.....	New Hampshire.	American.....	American....	M.	2
1,451	Temperer.....	New Hampshire.	American.....	American....	S.	
1,469	Cutler.....	New Hampshire.	American.....	American....	S.	
1,492	Cutler.....	Maine.....	American.....	American....	S.	
1,498	Grinder.....	New Hampshire.	American.....	American....	S.	
3,268	Clipper maker.	Canada	Canadian.....	Canadian	M.	6

INDIVIDUAL REPORTS.

COOPERS.

Showing school conditions, age began work, years in occupation, hours employed weekly, number of days unemployed and cause of non-employment, wage conditions, etc.

No. at school.	Weeks at school.	Dependent in fam.	Age began work.	Yrs. in occupation	With employer.	Hours weekly.	Hours Saturday.	Days unemployed during year.	Cause of non-employment.	Wages per week.	Wages decreased.	Weekly reduction.	Wages paid.
3	30	6	15	21	15	60	10	20	shut down	$10.00	no	.....	Monthly.
..	..	2	13	16	16	60	10	25	Vacation	12.00	no	.....	Monthly.
1	32	4	17	13	13	60	10	....	.....	10.00	no	.....	Monthly.
..	..	..	14	8	8	60	10	15	Vacation	10.00	no	.....	Monthly.
3	36	5	12	14	14	60	10	....	.....	12.00	no	.....	Monthly.
..	..	4	12	14	12	58	8	40	No work	10.00	no	.....	Monthly.
..	..	..	8	25	21	60	10	....	.....	5.00	....	.....	Quarterly.
..	..	4	20	35	13	60	10	....	.....	6.00	no	.....	Monthly.
..	..	4	15	3	2	60	10	....	.....	10.00	....	.....	Monthly.
..	..	3	20	40	40	60	10	....	.....	6.00	no	.....	Irregular.
..	..	..	6	20	1	84	14	12	Vacation	9.00	no	.....	Irregular.
5	40	10	12	30	4	59	9	30	Vacation	16.50	no	.....	Monthly.
..	..	..	14	18	1	59	9	35	Vacation	18.00	no	.....	Monthly.
6	30	12	12	27	27	60	10	3	Sickness	9.00	yes	$3.00	Monthly.
1	33	3	17	13	13	60	10	100	Sickness, etc	9.00	no	.....	Fortnightly.
1	40	6	10	3	3	60	10	30	No work	9.00	no	.....	Monthly.

CUTLERS.

Showing school conditions, age began work, etc.

..	..	..	18	3	3	59	9	10	Vacation	$9.00	yes	$1.25	Weekly.
..	..	3	15	5	3	59	9	....	.....	10.00	yes	1.50	Weekly.
2	26	6	..	4	8	..	..	100	No work	10.00	yes	1.50	Weekly.
1	27	3	21	9	9	50	..	20	Vacation	7.50	yes	75	Weekly.
2	36	5	14	8	8	45	..	74	No work	7.50	yes	3.50	Weekly.
..	..	2	14	17	15	45	..	84	No work	8.00	yes	3.50	Weekly.
4	26	7	14	20	10	59	9	18	Vacation	12.00	....	.....	Weekly.
1	26	4	..	17	17	50	..	50	No work	13.50	yes	1.50	Weekly.
..	..	..	15	5	5	54	9	150	No work	9.00	yes	4.00	Weekly.
..	..	3	15	20	7	45	..	70	No work	5.50	yes	3.50	Weekly.
..	..	2	14	9	7	45	..	108	No work	9.00	yes	1.75	Weekly.
..	..	..	8	6	4	45	..	....	.....	7.00	yes	1.50	Weekly.
2	..	7	..	7	7	60	10	....	.....	9.50	yes	1.50	Weekly.

INDIVIDUAL REPORTS.

COOPERS.

TABLE 37 (CONCLUDED).—*Showing individual earnings, income from other sources and total income, living expenses, savings account, home conditions, etc.*

Blank number.	Wages withheld.	No. days' pay.	Individual earnings of self during year.	Income from other sources.	Total income.	Living expenses (single).	Living expenses (with family).	Earn more than family expenses.	Wages of wife or children required.	Savings bank account.	Saved earnings.	Own a home.	Estimated value of home.	Home incumbered
614	no	..	$500	$20	$520	.....	$425	yes	....	yes	yes	no	.....	....
767	no	..	600	200	800	....	.....	yes	....	yes	yes	yes	$1,800	no
2,273	yes	14	.....	.....	.....	.....	.....	no	....	.....	....	no	.....	....
2,936	no	..	500	.....	500	.....	.....	.....	....	yes	yes	....	.....	....
3,826	no	..	600	.....	600	.....	600	no	....	no	no	....	.....	....
4,416	yes	15	500	.....	500	.....	500	no	yes	yes	no	....	.....	....
6,431	no	..	240	.....	240	.....	.....	.....	....	.....	....	yes	1,500	no
6,480	no	..	300	.....	300	.....	200	no	yes	no	no	yes	2,000	yes
6,542	yes	15	425	.....	425	.....	500	no	....	no	no	no	.....	....
6,804	no	..	300	300	600	.....	300	yes	....	no	no	yes	2,000	no
6,805	yes	..	400	50	450	$275	.....	yes	....	yes	yes	no	.....	....
7,066	no	..	700	100	800	.....	800	yes	...	yes	no	no	.....	....
8,491	.....	..	846	.....	846	.....	.....	yes	....	no	no	no	.....	....
9,917	no	..	460	540	1,000	.....	.....	no	yes	yes	yes	yes	2,000	no
9,792	yes	10	300	.....	300	.....	.....	no	no	no	no	yes	.....	....
9,817	...	..	425	90	510	.....	600	no	....	no	no	yes	2,000	no

CUTLERS.

TABLE 38 (CONCLUDED).—*Showing individual earnings, income, etc.*

1,019	no	..	$450	.....	$450	$218	.....	yes	....	yes	yes	no	.....	....
1,059	no	..	400	.....	400	.....	$250	yes	no	yes	yes	no	.....	....
1,064	yes	3	320	.....	320	.....	.....	....	....	no	no	....	.....	....
1,082	no	..	300	.....	300	.....	.....	no	....	yes	no	no	.....	....
1,107	yes	6	275	.....	275	.....	.....	....	....	.....	....	no	.....	....
1,114	yes	6	400	$50	450	.....	.....	no	...	yes	no	....	.....	....
1,386	no	..	.....	.....	.....	.....	.....	no	....	no	no	no	.....	....
1,387	yes	6	590	.....	590	.....	530	yes	....	yes	yes	no	.....	....
1,451	yes	6	234	.....	234	.....	234	no	....	yes	no	no	.....	....
1,469	yes	6	310	.....	310	.....	310	no	....	no	no	yes	$1,100	no
1,492	no	..	200	.....	200	200	.....	no	....	.....	....	.....	.....	....
1,498	no	..	350	.....	350	208	.....	....	....	no	no	no	.....	....
3,268	no	..	475	.....	475	.....	.....	y	yes	no	yes	yes	400	yes

INDIVIDUAL REPORTS.

COOPERS.

Showing home conditions, board per week with room, number of fraternal orders connected with, amount yearly dues, weekly benefits, death benefits, trade union, etc.

Ins. against fire.	No. rooms occ'p'd.	Sanitary condition of home.	Occupy tenement.	Monthly rent.	No. rooms occ'p'd.	Sanitary condition of tenement.	Board per week, including room.	Keep account of living expenses.	Take books from public library.	No. fra't'l orders.	Am't yearly dues, assessments, etc.	Weekly benefits.	Death benefits payable to family.	Belong to trade union.
...	..	.....	yes	$8.50	5	good	.....	yes	yes	2	$38.00	.....	$1,000	no
yes	7	good	no	.....	..	.....	.....	no	no	1	.....	.....	.....	no
....	..	.....	yes	11.00	6	good	.....	.....	.....	..	.....	.....	.....	....
....	..	.....	.....	.....	..	.....	$4.50	.....	.....	..	.....	.....	.....	no
....	..	.....	yes	12.00	7	good	.....	yes	yes	1	40.00	15.00	.....	no
....	..	.....	yes	7.00	6	good	.....	no	no	..	.....	.....	.....	no
es	..	.....	no	.....	..	.....	.....	no	yes	1	15.00	.....	2,000	no
yes	9	fair	no	.....	..	.....	.....	no	yes	4	30.00	.....	2,000	no
....	..	.....	yes	12.00	6	good	.....	yes	no	..	.....	.....	.....	no
yes	10	good	no	.....	..	.....	.....	yes	yes	..	.....	.....	.....	no
....	..	.....	.....	.....	..	.....	4.00	no	yes	..	.....	.....	.....	no
....	..	.....	yes	6.00	6	fair	4.25	no	no	..	.....	.....	.....	no
....	..	.....	.....	.....	..	.....	5.00	no	no	2	6.00	.....	.....	yes
yes	10	good	no	.....	..	.....	.....	yes	yes	..	.....	.....	2,000	no
....	..	.....	.....	.....	..	.....	3.50	yes	yes	..	.....	.....	.....	no
yes	8	good	no	.....	..	.....	.....	no	no	..	.....	.....	.....	no

CUTLERS.

Showing home conditions, fraternal statistics, etc.

....	..	.....	.....	.....	..	.....	$4.00	.. ...	yes	..	.....	.....	.....	no
....	..	.....	.....	.....	..	.....	4.50	yes	yes	1	$20.00	.....	$2,000	no
....	..	.....	yes	$5.00	5	good	.....	no	yes	1	5.00	$2.00	50	no
....	..	.....	yes	7.00	6	good	.....	no	yes	..	.....	.....	100	no
....	..	.....	yes	7.50	7	good	.....	yes	yes	..	.....	.....	.....	no
....	..	.....	yes	7.00	4	good	.....	no	yes	2	8.00	8.00	25	yes
....	..	.....	yes	5.00	2	fair	.....	no	yes	..	.....	.....	.....	no
....	..	.....	yes	9.00	5	good	.....	no	no	1	5.00	2.00	50	no
....	..	.....	.....	.....	..	.....	.....	no	no	1	4.00	2.00	30	no
yes	7	good	no	.....	..	.....	.....	no	yes	1	6.00	5.00	25	no
....	..	.....	.....	.....	..	.....	.....	no	yes	1	2.00	3.00	.....	no
....	..	.....	.....	.....	..	.....	4.00	no	yes	2	6.00	2.00	.....	....
no	4	good	yes	6.00	4	good	.....	no	no	1	6.00	5.00	500	no

INDIVIDUAL REPORTS.

ENGINEERS.

TABLE 39.—*Showing branch of occupation in which engaged, birthplace of person reporting, nationality of father and mother, married or single, etc.*

Blank number.	Branch of occupation.	Birthplace.	Nationality of father.	Nationality of mother.	Mar., single, wid.	Children in family.
981	Stationary...	New York.....	American.....	American....	S.	
1,322	Stationary...	New Hampshire.	American.....	American....	M.	
2,265	Stationary...	Maine.....	American.....	American....	M.	2
2,351	Stationary...	New Hampshire.	American.....	American....	M.	3
2,443	Stationary...	New Hampshire.	American.....	American....	M.	
2,456	Stationary...	New Hampshire.	American.....	American....	M.	
3,632	Stationary...	Vermont.....	American.....	American....	M.	
4,342	Stationary...	Massachusetts..	American.....	American....	M.	
4,980	Stationary...	New Hampshire.	American.....	American....	M.	
5,629	Stationary...	New Hampshire.	American.....	American....	M.	2
5,773	Stationary...	Massachusetts..	American.....	American....	M.	3
6,475	Stationary...	New Hampshire.	American.....	American....	M.	2
6,714	Stationary...	New Jersey.....	American.....	American....	S.	
7,134	Stationary...	Maine.....	American.....	American....	M.	3
7,165	Stationary...	New Hampshire.	American.....	American....	M.	3
8,086	Stationary...	New Hampshire.	American.....	American....	M.	
8,479	Stationary...	Maine.....	American.....	American....	M.	1

HARNESS MAKERS.

TABLE 40.—*Showing branch of occupation, birthplace, etc.*

3,716	Horse Collar	New Hampshire.	American.....	American.....	M.	
3,907	Pressman....	New Hampshire.	American.....	American....	M.	1
5,028	Pressman....	New Hampshire.	Irish	Irish.....	M.	3
6,465	Harness.....	New Hampshire.	Irish	Irish	S.	
6,514	Stitcher.....	New Hampshire.	German	German	S.	
9,111	Mch. Stitcher	Massachusetts...	Irish	Irish	M.	
9,177	Harness.....	Ireland	Irish	Irish	S.	
9,897	Cutter	Vermont.....	American.....	American....	M.	3

INDIVIDUAL REPORTS.

ENGINEERS.

Showing school conditions, age began work, years in occupation, hours employed weekly, number of days unemployed and cause of non-employment, wage conditions, etc.

No. at school.	Weeks at school.	Dependent in fam.	Age began work.	Yrs. in occupation.	With employer.	Hours weekly.	Hours Saturday.	Days unemployed during year.	Cause of non-employment.	Wages per week.	Wages decreased.	Weekly reduction.	Wages paid.
..	..	..	16	5	2	59	9	....	.....	$12.00	no	.....	Weekly.
..	..	2	17	..	..	45	..	100	No work	7.00	no	.....	Weekly.
..	..	4	16	10	7	60	10	....	.....	13.50	no	.....	Weekly.
2	36	5	17	20	5	60	6	....	.....	14.00	no	.....	Weekly.
..	..	2	20	4	4	60	6	20	Vacation.....	11.00	no	.....	Weekly.
..	..	2	13	10	2	60	6	7	Vacation.....	9.50	no	.....	Weekly.
..	..	2	16	30	2	60	6	84	Shutdown.....	18.00	yes	$3.50	Weekly.
..	..	2	12	..	..	60	11	....	.....	9.00	no	.....	Weekly.
..	..	2	18	18	1	60	10	....	.....	9.50	no	.....	Fortnightly.
2	24	4	12	20	10	..	..	....	.....	12.00	yes	3.00	Weekly.
3	36	5	13	17	1	65	10	100	No work	15.00	no	.....	Weekly.
1	36	4	18	20	3	72	11	30	No work	13.50	no	.....	Weekly.
..	..	..	14	5	5	72	12	....	.....	9.00	no	.....	Fortnightly.
..	..	5	16	2	..	54	9	36	No work.....	12.00	yes	1.50	Fortnightly.
2	..	4	15	25	11	54	9	....	.....	10.00	no	.....	Weekly.
..	..	3	14	3	2	60	10	....	.....	10.00	no	.....	Weekly.
..	..	3	16	4	1	59	9	30	Vacation.....	15.00	no	.....	Weekly.

HARNESS MAKERS.

Showing school conditions, age began work, etc.

..	..	2	17	14	14	48	8	100	No work.	$10.00	no	.....	Monthly.
..	..	3	18	1	1	59	9	....	.....	8.00	yes	$1.00	Weekly.
1	36	5	17	1	1	60	10	90	No work.....	7.50	no	.....	Monthly.
..	..	3	9	15	1	..	..	....	.....	.....	....	.....	
..	..	..	16	4	4	60	9	50	No work.....	7.00	no	.....	Weekly.
..	..	2	18	9	8	60	10	150	No work	12.00	yes	2.00	Weekly.
..	..	..	14	18	5	60	10	72	Shutdown.....	9.00	yes	1.50	Weekly.
3	36	5	13	17	6	60	10	96	Shutdown.....	10.00	yes	3.00	Weekly.

INDIVIDUAL REPORTS.

ENGINEERS.

TABLE 39 (CONCLUDED).—*Showing individual earnings, income from other sources and total income, living expenses, savings account, home conditions, etc.*

Blank number.	Wages withheld.	No. days' pay.	Individual earnings of self during year.	Income from other sources.	Total income.	Living expenses (single).	Living expenses (with family).	Earn more than family expenses.	Wages of wife or children required.	Savings-bank account.	Saved earnings.	Own a home.	Estimated value of home.	Home incumbered
981	yes	6	$600	.....	$600	$208	.....	yes	....	yes	yes	....	.....	....
1,322	....	..	400	$48	448	.....	$219	yes	....	no	no	yes	$1,200	yes
2,265	yes	6	750	.....	750	.....	750	no	no	no	no	no	.....	....
2,351	yes	5	865	.....	865	.....	700	yes	no	yes	no	no	.....	....
2,443	yes	5	600	.....	600	.....	440	yes	no	yes	yes	no	.....	....
2,456	....	..	475	300	775	.....	365	yes	....	yes	yes	no	.....	....
3,632	yes	6	700	.....	700	.....	.....	.....	....	no	no	no	.....	....
4,342	yes	3	450	.....	450	.....	.....	no	....	yes	no	yes	2,100	no
4,980	....	..	475	.....	475	.....	.....	.....	....	.....	....	no	.....	....
5,629	....	..	600	.....	600	.....	600	no	....	.....	....	no	.....	....
5,773	yes	3	500	220	720	.....	720	no	....	no	no	no	.....	....
6,475	no	..	634	.....	634	.....	387	yes	....	yes	yes	yes	2,500	yes
6,714	no	..	468	.....	468	.....	.....	.....	....	no	yes	....	.....	....
7,134	yes	3	550	72	622	.....	772	no	....	no	no	no	.....	....
7,165	no	..	540	.....	540	.....	350	yes	...	yes	no	no	.....	....
8,086	yes	6	520	30	552	.....	.....	yes	....	no	yes	yes	2,500	yes
8,479	no	..	600	.....	600	.....	.....	no	....	no	no	no	.....	....

HARNESS MAKERS.

TABLE 40 (CONCLUDED).—*Showing individual earnings, income, etc.*

3,716	no	..	$400	.....	$400	.....	$400	no	....	no	no	yes	.....	yes
3,907	yes	6	.....	.....	.....	.....	.....	.....	....	yes	yes	no	.....	....
5,028	yes	10	392	.....	392	.....	392	no	....	yes	no	no	.....	....
6,465	....	..	.....	.....	.....	$500	.....	yes	....	yes	yes	no	.....	....
6,514	no	..	280	.....	280	265	.....	.....	.....	yes	yes	no	.....	....
9,111	no	..	300	.....	300	260	.....	yes	....	....	....	no	.....	....
9,177	no	..	360	.....	360	300	.....	yes	....	no	no	no	.....	....
9,897	no	..	330	.....	330	.....	500	no	no	no	no	yes	$1,300	yes

INDIVIDUAL REPORTS.

ENGINEERS.

Showing home conditions, board per week with room, number of fraternal orders connected with, amount yearly dues, weekly benefits, death benefits, trade union, etc.

Ins. against fire.	No. rooms occ'p'd.	Sanitary condition of home.	Occupy tenement.	Monthly rent.	No. rooms occ'p'd.	Sanitary condition of tenement.	Board per week, including room.	Keep account of living expenses.	Take books from public library.	No. fra'l orders.	Am't yearly dues, assessments, etc.	Weekly benefits.	Death benefits payable to family.	Belong to trade union.
....	..	.....	.....	.....	..	.....	$4.00	no	no	..	.....	.....	.....	no
yes	5	good	.....	.....	..	.....	.....	yes	yes	4	$21.00	$11.00	$1,090	no
....	..	.....	yes	$13.00	6	good	.....	no	no	2	2.00	.....	1,000	no
....	..	.....	yes	5.50	7	good	.....	no	no	1	5.00	3.00	25	no
....	..	.....	yes	5.40	7	good	.....	yes	no	2	6.00	4.00	20	no
....	..	.....	.....	.....	..	.....	.....	yes	yes	4	13.00	9.00	85	no
....	..	.....	yes	10.00	6	fair	4.00	no	no	1	4.00	.....	.....	no
yes	8	good	no	.....	..	.....	.....	no	no	1	2.00	10.00	2,000	no
....	..	.....	yes	9.00	3	.....	.....	no	yes	..	.....	.....	.....	no
....	..	.....	yes	10.00	5	.....	.....	no	no	..	.....	.....	.....	no
....	..	.....	yes	14.00	6	good	.....	yes	no	..	.....	.....	.....	no
yes	5	good	no	.....	..	.....	.....	yes	yes	1	13.00	.....	.....	no
....	..	.....	.....	.....	..	.....	4.00	no	no	..	.....	.....	.....	no
....	..	.....	yes	10.00	6	fair	.....	no	no	2	7.00	.....	.....	no
....	..	.....	yes	13.00	6	good	.....	no	no	2	10.00	9.00	75	no
yes	8	good	no	.....	..	.....	.....	no	no	5	35.00	12.00	2,000	no
....	..	.....	yes	5.00	4	fair	.....	yes	yes	1	46.00	15.00	2,500	no

HARNESS MAKERS.

Showing home conditions, fra'ernal statistics, etc.

yes	8	good	no	.....	..	.....	.....	no	yes	1	$26.00	.....	$2,000	no
....	..	.....	yes	13.00	7	good	.....	yes	yes	1	22.00	$24.00	1,500	no
....	..	.....	yes	10.50	6	good	.....	no	yes	1	8.00	5.00	100	no
....	..	.....	.....	.....	..	.....	$4.00	yes	no	1	6.00	4.00	100	no
....	..	.....	.....	.....	..	.....	4.00	yes	no	1	5.00	.....	200	no
....	..	.....	.....	.....	..	.....	5.00	no	yes	2	11.00	10.00	200	no
....	..	.....	.....	.....	..	.....	4.00	yes	no	2	10.00	10.00	250	no
yes	7	good	no	.....	..	.....	.....	no	yes	2	25.00	3.00	1,075	no

INDIVIDUAL REPORTS.

LABORERS.

TABLE 41.—*Showing branch of occupation in which engaged, birthplace of person reporting, nationality of father and mother, married or single, etc.*

Blank number.	Branch of occupation.	Birthplace.	Nationality of father.	Nationality of mother.	Mar., single, wid.	Children in family.
1,616	Manual	Canada	Irish	Canadian	M.	2
2,589	Toy shop	New Hampshire.	American	American	S.	
3,048	Laborer	Ireland	Irish	Irish	M.	
3,387	Shoveler	Canada	Canadian	Canadian	M.	6
5,243	Shop	New Hampshire.	American	American	M.	
6,511	Manual	New Hampshire.	Irish	Irish	M.	3
7,197	Laundry	Ireland	Irish	Irish	W.	
8,498	Manual	Ireland	Irish	Irish	S.	
9,350	Brickyard	Vermont	Canadian	Canadian	M.	1
9,488	Manual	New Hampshire.	American	American	M.	3

MACHINISTS.

TABLE 42.—*Showing branch of occupation, birthplace, etc.*

40	Machinist	Scotland	Scotch	Scotch	M.	4
95	Repairer	New York	German	German	M.	7
262	Repairer	Massachusetts	American	American	M.	
419	Planer	New Hampshire.	American	American	M.	
469	Machinist	England	Irish	Scotch	S.	
810	Machinist	New Hampshire.	American	American	M.	1
822	Machinist	New Hampshire.	American	American	M.	2
927	Setter up	Maine	American	Irish	M.	4
963	Latheman	Massachusetts	American	American	S.	
1,015	Repairer	New Hampshire.	American	American	M.	
1,585	Repairer	New Hampshire.	Irish	Irish	M.	5
1,691	Repairer	New Hampshire.	American	American	M.	
1,692	Machinist	New Hampshire.	American	American	M.	2
1,708	Machinist	Massachusetts	American	American	S.	
1,725	Machinist	New Hampshire.	Irish	Irish	M.	
1,803	Machinist	Massachusetts	Irish	English	M.	
1,920	Iron dresser	Scotland	Irish	Irish	M.	3
2,162	Latheman	New Hampshire.	American	American	M.	
2,308	Latheman	New Hampshire.	American	American	S.	7
2,374	Turner	Massachusetts	American	American	M.	1

INDIVIDUAL REPORTS.

LABORERS.

Showing school conditions, age began work, years in occupation, hours employed weekly, number of days unemployed and cause of non-employment, wage conditions, etc.

No. at school.	Weeks at school.	Dependent in fam.	Age began work.	Yrs. in occupation.	With employer.	Hours weekly.	Hours Saturday.	Days unemployed during year.	Cause of non-employment.	Wages per week.	Wages decreased.	Weekly reduction.	Wages paid.
1	39	4	..	..	..	60	10	100	No work	$9.00	....	.....	Weekly.
..	..	..	17	9	9	60	10	30	Vacation	9.00	no	.....	Monthly.
..	..	2	14	6	..	60	10	104	No work	9.00	no	.....	Weekly.
2	36	9	10	25	1	60	10	30	Sickness	7.50	no	.....	Monthly.
..	..	2	10	1	1	59	9	....	....	9.00	no	.....	Weekly.
2	36	5	10	13	13	60	10	48	....	7.00	yes	$3.00	Fortnightly.
..	..	..	14	6	6	59	9	18	Vacation	12.00	yes	1.50	Weekly.
..	..	..	15	..	..	..	..	260	No work	9.00	yes	1.00	Weekly.
..	..	3	13	2	2	69	11	60	No work	10.50	no	.....	Monthly.
1	36	6	17	21	3	60	10	100	No work	9.00	yes	1.50	Weekly.

MACHINISTS.

Showing school conditions, age began work, etc.

2	..	6	13	12	7	60	8	40	Shutdown	$9.50	yes	$1.00	Fortnightly.
4	..	9	16	15	15	60	8	77	No work	12.00	yes	1.25	Fortnightly.
..	..	2	14	35	1	60	8	....	....	13.00	yes	1.50	Fortnightly.
..	..	2	22	21	18	60	10	....	....	15.00	no	.....	Fortnightly.
..	..	..	13	4	3	60	8	30	Shutdown	6.00	yes	1.25	Fortnightly.
..	..	3	15	6	6	59	9	12	Vacation	13.50	no	.....	Monthly.
2	24	4	..	14	14	60	10	162	Hard times	12.00	no	.....	Monthly.
4	36	6	8	25	5	60	8	....	....	12.00	no	.....	Monthly.
..	..	..	15	15	8	59	9	45	No work	13.50	yes	1.25	Weekly.
..	..	2	14	13	9	50	..	50	Vacation	8.00	yes	2.50	Monthly.
2	36	7	17	20	20	60	8	65	Shutdown	10.00	yes	3.50	Fortnightly.
..	..	3	15	43	43	58	8	39	No work	11.50	yes	1.75	Fortnightly.
1	38	4	18	8	2	60	8	45	No work	12.00	yes	1.25	Fortnightly.
..	..	..	18	4	6	57	7	6	Vacation	11.00	no	.....	Weekly.
..	..	2	15	9	6	45	5	....	....	8.50	yes	3.50	Monthly.
..	..	2	8	6	2	60	8	16	....	9.00	yes	.50	Fortnightly.
..	..	5	12	16	..	60	10	....	....	8.00	yes	.75	Weekly.
..	..	2	16	4	4	55	5	54	No work	9.00	yes	1.00	Weekly.
3	36	8	14	2	2	60	10	12	Sickness	9.00	yes	1.00	Weekly.
..	..	3	18	3	2	47	7	40	Sickness	7.00	yes	1.75	Weekly.

INDIVIDUAL REPORTS.

LABORERS.

TABLE 41 (CONCLUDED).—*Showing individual earnings, income from other sources and total income, living expenses, savings account, home conditions, etc.*

Blank number.	Wages withheld.	No. days' pay.	Individual earnings of self during year.	Income from other sources.	Total income.	Living expenses (single).	Living expenses (with family).	Earn more than family expenses.	Wages of wife or children required.	Savings bank account.	Saved earnings.	Own a home.	Estimated value of home.	Home incumbered
1,616	no	..	$300	.....	$300	.....	$300	no	....	no	no	no	.....	....
2,589	....	..	424	.....	424	.....	.....	....	....	....	....	....	.....	....
3,048	yes	4	300	.....	300	.....	300	no	....	no	no	no	.....	....
3,387	no	..	350	$582	932	.....	932	no	....	no	no	no	$1,500	yes
5,243	yes	3	350	.....	350	.....	.....	no	....	no	no	yes	.....	....
6,511	yes	3	315	.....	315	.....	315	no	....	yes	no	no	.....	....
7,197	yes	8	500	.....	500	$268	.....	yes	....	yes	yes	no	.....	....
8,498	yes	8	60	24	84	280	.....	no	...	no	no	no	.....	....
9,350	yes	15	350	.....	350	.....	300	yes	....	no	no	no	.....	....
9,488	no	..	275	50	325	.....	325	no	yes	no	no	no	.....	....

MACHINISTS.

TABLE 42 (CONCLUDED).—*Showing individual earnings, income, etc.*

40	no	..	$450	$75	$525	.....	.....	yes	yes	yes	yes	no	.....	....
95	yes	4	470	.....	470	.....	$525	no	....	no	no	no	.....	....
262	no	..	748	72	820	.....	.....	.....	....	yes	yes	no	.....	....
419	no	..	750	48	798	.....	.....	yes	....	yes	yes	yes	$2,500	no
469	no	..	282	.....	282	.....	.....	.....	....	....	....	no	.....	....
810	yes	12	700	.....	700	.....	.....	yes	...	no	yes	yes	1,400	yes
822	no	..	275	.....	275	.....	.....	.....	....	....	....	yes	600	no
927	....	..	600	.....	600	.....	600	no	....	....	....	no	.....	....
963	yes	6	550	.....	550	$300	.....	yes	....	yes	yes	no	.....	....
1,015	yes	6	400	120	520	.....	500	no	....	yes	no	no	.....	....
1,585	no	..	592	250	742	.....	642	yes	....	no	yes	yes	2,800	yes
1,691	no	..	589	464	1,052	.....	.....	.....	....	yes	no	no	.....	....
1,692	yes	5	540	.....	540	.....	.....	yes	no	yes	yes	yes	.....	no
1,708	yes	6	600	.....	600	.....	.....	.....	....	yes	no	no	.....	....
1,725	yes	7	425	.....	425	.....	.....	yes	no	no	no	no	.....	....
1,803	yes	1	441	.....	441	.....	.....	.....	....	yes	no	no	.....	....
1,920	yes	13	80	130	210	.....	.....	no	yes	no	no	no	.....	....
2,162	yes	6	475	.....	475	.....	350	yes	no	yes	yes	no	.....	....
2,308	no	..	450	806	1,256	.....	.....	yes	yes	yes	yes	no	... .	....
2,374	yes	6	360	.....	360	.....	360	no	....	no	no	no	.....	....

INDIVIDUAL REPORTS.

LABORERS.

Showing home conditions, board per week with room, number of fraternal orders connected with, amount yearly dues, weekly benefits, death benefits, trade union, etc.

Ins. against fire.	No. rooms occ'p'd.	Sanitary condition of home.	Occupy tenement.	Monthly rent.	No. rooms occ'p'd	Sanitary condition of tenement.	Board per week, including room.	Keep account of living expenses.	Take books from public library.	No. frat'l orders.	Am't yearly dues, assessments, etc.	Weekly benefits.	Death benefits payable to family.	Belong to trade union.
....	....	.....	yes	$10.00	6	good	.....	no	no	..	.....	.....	.....	no
....	....	.....	.....	.....	..	.....	$3.00	no	no	..	.....	.....	.....	no
....	....	.....	yes	.....	4	.....	.....	no	yes	1	$6.00	$5.00	$50	
....	....	.....	yes	8.00	7	good	.....	no	no	1	2.00	.....	.....	no
yes	7	good	no	.....	..	.....	.....	yes	no	..	.....	.....	.....	no
....	....	.....	yes	7.00	3	.....	.....	no	yes	..	.....	.....	.....	no
....	....	.....	.....	.....	..	.....	5.00	yes	yes	1	7.00	5.00	50	no
....	....	.....	.....	.....	..	.....	4.00	yes	yes	..	.....	.....	.....	no
.....	....	.....	yes	5.00	3	fair	.....	no	.....	..	.....	.....	.....	no
....	....	.....	yes	10.00	6	fair	.....	no	no	..	.....	.....	.....	no

MACHINISTS.

Showing home conditions, fraternal statistics, etc.

....	....	.....	yes	$10.00	7	good	.....	no	no	2	$12.00	$10.00	$135	no
....	....	.....	yes	4.50	5	fair	.....	yes	yes	3	16.00	14.00	230	no
....	....	.....	yes	10.00	7	poor	.....	no	yes	3	11.00	10.00	50	no
yes	7	good	no	.....	..	.....	.....	yes	no	1	6.00	5.00	50	no
....	....	.....	yes	10.00	8	.....	.....	no	no	..	.....	.....	.....	no
yes	6	good	no	.....	..	.....	.....	no	yes	1	5.00	2.00	1,000	no
yes	7	good	no	.....	..	.....	.....	no	yes	..	.....	.....	.....	no
....	....	.....	yes	9.00	6	bad	.....	no	yes	..	.....	.....	.....	no
....	....	.....	.....	.....	..	.....	$4.00	no	no	..	.....	.....	.....	no
....	....	.....	yes	9.00	6	good	.....	yes	yes	2	3.00	.....	.....	no
yes	7	good	no	.....	..	.....	.....	yes	yes	1	6.00	5.00	100	no
....	....	.....	yes	12.00	12	fair	.....	yes	no	1	.....	.....	1,000	no
yes	8	good	no	.....	..	.....	.....	no	yes	..	.....	....	.....	no
....	....	.....	no	.....	..	.....	4.00	no	no	2	8.00	4.00	50	no
....	....	.....	no	.....	..	.....	4.00	no	no	1	6.00	5.00	100	no
....	....	.....	yes	5.00	4	good	.....	no	no	1	4.00	4.00	20	no
....	....	.....	yes	3.50	3	fair	.....	no	no	..	.....	.....	.....	no
....	....	.....	no	.....	..	.....	6.50	no	yes	1	6.00	16.00	.....	no
....	....	.....	yes	10.00	6	fair	.....	no	yes	2	9.00	5.00	100	no
....	....	.....	yes	10.00	3	fair	.....	no	no	1	7.00	4.00	50	no

INDIVIDUAL REPORTS.

MACHINISTS.

TABLE 42 (CONTINUED).—*Showing branch of occupation in which engaged, birthplace of person reporting, nationality of father and mother, married or single, etc.*

Blank number.	Branch of occupation.	Birthplace.	Nationality of father.	Nationality of mother.	Mar., single, wid.	Children in family.
2,390	Machinist	Vermont	American	American	M.	
2,510	Machinist	New Hampshire.	American	American	M.	1
2,921	Repairer	Massachusetts	American	American	M.	1
3,203	Machinist	New Hampshire.	American	American	M.	
3,554	Stove mounter	New Hampshire.	Scotch	American	W.	1
3,650	Latheman	New Hampshire.	American	American	M.	1
3,843	Wheel filler	Illinois	Irish	Irish	M.	2
4,023	Repairer	New Hampshire.	American	American	M.	2
4,663	Vise worker	Ireland	Irish	Scotch	M.	4
4,729	Machinist	New Hampshire.	American	American	M.	
4,886	Machinist	Massachusetts	American	American	S.	
4,921	Machinist	Scotland	Irish	Irish	M.	
4,963	Repairer	Massachusetts	American	American	M.	
4,966	Machinist	England	English	English	M.	
5,032	Axle finisher	Ireland	Irish	Irish	M.	2
5,496	Machinist	New Hampshire.	American	American	W.	
5,609	Setter up	New Hampshire.	Irish	Irish	S.	
5,936	Repairer	New Hampshire.	American	American	M.	1
5,982	Machinist	New York	American	American	M.	1
6,032	Machinist	Massachusetts	American	American	M.	3
6,154	Machinist	New Hampshire.	American	American	M.	
6,185	Machinist	New Hampshire.	American	American	M.	1
6,202	Loom fixer	Germany	German	German	M.	1
6,221	Repairer	Ireland	Irish	Irish	M.	
6,359	Vise hand	New Hampshire.	American	American	M.	1
6,387	Repairer	New Hampshire.	American	American	S.	
6,512	Repairer	New Hampshire.	American	American	W.	
6,580	Machinist	Norway	Norwegian	Norwegian	W.	7
6,618	Vise hand	New Hampshire.	American	American	M.	1
6,687	Machinist	Vermont	American	American	M.	
6,721	Tool maker	Massachusetts	American	American	M.	1
6,866	Tool maker	Ireland	Irish	Irish	M.	
7,361	Marine engine	Maine	American	American	M.	
7,660	Mining engine	Massachusetts	American	American	M.	1
7,773	Repairer	Vermont	American	American	M.	1

INDIVIDUAL REPORTS.

MACHINISTS.

Showing school conditions, age began work, years in occupation, hours employed weekly, number of days unemployed and cause of non employment, wage conditions, etc.

No. at school.	Weeks at school.	Dependent in fam.	Age began work.	Yrs. in occupation	With employer.	Hours weekly.	Hours Saturday.	Days unemployed during year.	Cause of non-employment.	Wages per week.	Wages decreased.	Weekly reduction.	Wages paid.
..	..	2	5	40	1	60	10	120	No work	$12.00	no	.....	Fortnightly.
..	..	3	16	10	7	59	9	90	No work	15.00	yes	$1.25	Weekly.
..	..	3	15	20	2	60	10	....	.....	13.50	no	.....	Weekly.
..	..	3	12	40	25	..	..	100	No work	12.00	yes	1.25	Fortnightly.
1	18	2	13	2	2	60	9	6	No work	9.00	yes	1.00	Weekly.
1	36	3	18	12	4	59	5	18	Sickness	12.50	yes	3.00	Monthly.
..	..	4	18	9	9	59	9	24	No work	12.00	no	.....	Weekly.
..	..	4	16	14	6	60	8	....	.....	13.00	yes	.50	Fortnightly.
4	35	6	13	26	13	45	5	31	Sickness	13.50	yes	1.50	Weekly.
..	..	2	26	29	4	59	9	46	Sickness	13.50	yes	1.50	Monthly.
..	..	3	16	3	3	60	10	70	No work	21.00	no	.....	Weekly.
..	..	5	15	35	24	60	6	....	.....	12.50	yes	.25	Weekly.
..	..	2	15	30	..	..	..	12	.....	15.00	yes	3.00	Weekly.
..	..	2	14	..	4	60	10	25	Sickness	10.00	yes	2.00	Weekly.
..	..	4	14	1	1	60	9	60	No work	9.50	yes	1.50	Weekly.
..	..	2	16	..	..	..	..	80	No work	9.00	no	.....	Monthly.
..	..	..	16	2	2	45	5	....	.....	9.00	yes	3.00	Monthly.
1	..	3	..	32	17	60	8	30	Sickness	12.00	yes	1.00	Weekly.
..	..	3	18	2	2	60	9	....	.....	13.50	no	.....	Monthly.
1	36	4	12	24	12	60	10	10	Vacation	12.00	no	.....	Weekly.
..	..	3	..	40	1	..	..	145	No work	12.00	no	.....	
..	..	3	15	27	2	60	10	....	.....	18.00	no	.....	Monthly.
1	36	3	5	31	20	60	8	59	Shutdown	11.50	yes	.50	Fortnightly
..	..	3	12	50	38	60	10	40	No work	13.50	no	.....	Weekly.
1	36	3	12	27	7	45	..	100	No work	19.50	no	.....	Weekly.
..	..	..	16	8	8	60	8	60	.....	11.00	yes	1.75	Fortnightly.
..	..	2	13	37	20	40	..	....	.....	13.00	yes	3.50	Weekly.
5	..	9	15	13	..	..	..	46	No work	10.00	no	.....	Fortnightly.
..	..	3	14	3	3	55	5	20	No work	9.00	no	.....	Weekly.
..	..	2	..	1	1	80	10	....	.....	12.00	no	.....	Monthly.
..	..	4	18	30	11	58	8	290	Sickness	12.00	no	.....	Monthly.
..	..	2	17	6	6	58	8	105	No work	11.00	yes	1.00	Weekly.
..	..	4	21	35	25	48	8	10	Sickness	18.00	no	.....	Fortnightly.
..	..	3	12	..	..	..	..	....	.....	.....	....	.....	
1	38	3	12	26	12	60	10	....	.....	15.00	no	.....	Monthly.

INDIVIDUAL REPORTS.

MACHINISTS.

TABLE 42 (CONCLUDED).—*Showing individual earnings, income from other sources and total income, living expenses, savings account, home conditions, etc.*

Blank number.	Wages withheld.	No. days' pay.	Individual earnings of self during year.	Income from other sources.	Total income.	Living expenses (single).	Living expenses (with family).	Earn more than family expenses.	Wages of wife or children required.	Savings-bank account.	Saved earnings.	Own a home.	Estimated value of home.	Home incumbered
2,390	yes	6	$241	$200	$441	.....	$500	yes	....	yes	no	yes	$2,000	no
2,510	no	..	600	.....	600	.....	.....	no	....	yes	no	no	.....	....
2,921	no	..	675	.....	675	.....	600	yes	....	yes	yes	no	.....	....
3,203	....	..	400	.....	400	.....	.. ...	....	....	....	....	yes	.....	....
3,554	yes	6	450	.....	450	$225	.....	yes	....	yes	yes	no	.....	....
3,650	yes	6	480	.....	480	.....	.....	....	....	....	....	no	.....	....
3,843	yes	2	.....	.....	575	.....	575	no	....	no	no	yes	2,000	yes
4,023	yes	4	650	.....	650	.....	.....	yes	....	yes	yes	no	.....	....
4,663	yes	6	600	.....	600	.....	.....	....	....	no	no	no	.....	....
4,729	yes	7	600	.....	600	.. ...	.....	.....	....	yes	yes	no	.....	....
4,886	....	..	840	.....	840	.....	.....	no	....	no	no	no	.....	....
4,921	yes	5	600	.....	600	.....	.....	yes	yes	yes	no	no	.....	....
4,963	yes	3	900	.....	900	.....	.....	....	....	....	....	no	.....	....
4,966	no	..	.....	.....	.....	.....	.....	no	....	no	no	no	.....	....
5,032	no	..	400	.....	400	.....	325	yes	....	no	no	no	.....	....
5,496	no	..	350	.....	350	.....	.....	....	....	no	no	yes	.....	no
5,609	no	..	480	.....	480	.....	480	no	....	no	no	no	.....	....
5,936	no	..	564	.....	564	.....	.....	....	....	yes	yes	yes	4,000	yes
5,982	yes	15	675	.....	675	.....	.....	.....	.....	.....	....	no	.....	....
6,032	no	..	600	300	900	.....	.....	yes	....	yes	yes	no	.....	....
6,154	....	..	300	.....	300	.....	300	no	....	no	no	....	.....	....
6,185	no	..	915	252	1,167	.....	600	yes	no	yes	yes	yes	2,500	no
6,202	yes	3	473	.....	473	.....	473	no	....	yes	no	no	.....	....
6,221	no	..	561	132	693	.....	450	yes	no	yes	yes	yes	5,000	no
6,359	yes	1	650	125	775	.....	416	yes	....	no	yes	yes	2,000	yes
6,387	no	..	432	.....	432	300	.....	yes	....	....	....	no	.....	....
6,512	no	..	429	.....	429	.....	.....	....	....	yes	no	no	.....	....
6,580	yes	3	.....	.....	.....	.....	.....	yes	yes	no	no	no	.....	....
6,618	yes	6	432	.....	432	.....	432	no	....	no	no	no	.....	....
6,687	no	..	600	.....	.....	.....	.....	yes	....	yes	yes	yes	1,000	no
6,721	yes	10	50	450	500	.....	600	no	yes	no	no	yes	1,500	yes
6,866	yes	6	365	.....	.....	.....	300	no	yes	no	no	yes	2,000	yes
7,361	no	..	900	.....	900	.....	750	yes	....	yes	yes	yes	3,000	no
7,660	....	..	.....	.....	.....	.....	400	....	....	....	....	yes	2,000	no
7,773	yes	15	750	.....	750	.....	.....	yes	no	yes	yes	yes	1,000	no

INDIVIDUAL REPORTS.

MACHINISTS.

Showing home conditions, board per week with room, number of fraternal orders connected with, amount yearly dues, weekly benefits, death benefits, trade union, etc.

Ins. against fire.	No. rooms occ'p'd.	Sanitary condition of home.	Occupy tenement.	Monthly rent.	No. rooms occ'p'd.	Sanitary condition of tenement.	Board per week, including room.	Keep account of living expenses.	Take books from public library.	No. frat'l orders.	Am't yearly dues, assessments, etc.	Weekly benefits.	Death benefits payable to family.	Belong to trade union.
yes	6	good	no	.....	.....	.....	.....	no	yes	3	$10.00	$4.00	$50	no
.....	.....	.....	yes	$13.00	5	good	.....	no	yes	.....	.....	.....	.....	no
.....	.....	.....	yes	10.00	6	good	.....	yes	yes	1	15.00	5.00	2,000	no
yes	.....	.....	.....	.....	.....	.....	.....	no	no	.....	.....	.....	.....	no
.....	.....	.....	no	.....	.....	.....	$3.50	no	no	.....	.....	.....	.....	no
.....	.....	.....	yes	12.00	6	fair	.....	no	yes	1	5.00	5.00	.....	yes
yes	6	good	no	.....	.....	.....	.....	yes	no	1	18.00	.....	1,400	no
.....	.....	.....	no	.....	.....	.....	.....	yes	no	.....	.....	.....	.....	no
.....	.....	.....	yes	10.00	5	good	.....	no	yes	.....	.....	.....	.....	no
.....	.....	.....	yes	9.00	5	fair	.....	no	yes	2	48.00	.....	2,000	no
.....	.....	.....	.....	.....	.....	.....	5.00	no	no	1	20.00	.....	.....	yes
.....	.....	.....	yes	15.00	7	good	.....	no	no	2	10.00	10.00	150	no
.....	.....	.....	no	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	yes	8.00	4	good	.....	no	yes	2	20.00	8.00	200	yes
.....	.....	.....	yes	7.50	5	bad	.....	yes	no	.....	.....	.....	.....	no
yes	6	good	no	.....	.....	.....	.....	.....	yes	1	6.00	3.00	50	no
.....	.....	.....	no	.....	.....	.....	5.00	no	no	3	30.00	10.00	200	no
yes	6	good	no	.....	.....	.....	.....	no	yes	2	5.00	.....	.....	no
.....	.....	.....	yes	4.00	3	good	.....	no	.....	1	22.00	4.00	1,500	yes
.....	.....	.....	yes	12.00	6	good	.....	no	yes	2	.....	4.00	50	no
.....	.....	.....	yes	10.50	6	.....	.....	no	yes	1	.....	5.00	50	no
yes	6	good	no	.....	.....	.....	.....	yes	yes	1	6.00	5.00	100	no
.....	.....	.....	yes	18.00	7	good	.....	no	yes	.....	.....	.....	.....	no
yes	10	fair	no	.....	.....	.....	.....	yes	yes	.....	.....	.....	.....	no
yes	..	good	no	.....	.....	.....	.....	no	no	1	3.00	.....	.....	no
.....	.....	.....	no	.....	.....	.....	3.25	yes	no	5	18.00	14.00	150	no
.....	.....	.....	yes	7.50	9	good	.....	no	yes	1	40.00	.....	2,000	no
.....	.....	.....	yes	10.00	6	good	.....	no	yes	.....	.....	.....	.....	no
.....	.....	.....	yes	11.00	5	good	.....	no	no	.....	.....	.....	.....	no
yes	9	good	no	.....	.....	.....	.....	no	yes	2	16.00	5.00	50	no
yes	6	good	no	.....	.....	.....	.....	no	yes	.....	.....	.....	.....	no
yes	..	good	no	.....	.....	.....	.....	no	no	2	12.00	10.00	90	no
yes	8	good	no	.....	.....	.....	.....	no	yes	1	12.00	12.00	.....	no
yes	7	good	no	.....	.....	.....	.....	no	no	2	.....	25.00	2,000	no
yes	7	fair	no	.....	.....	.....	.....	no	yes	2	35 00	.....	2,500	no

INDIVIDUAL REPORTS.

MACHINISTS.

TABLE 42 (CONTINUED).—*Showing branch of occupation in which engaged, birthplace of person reporting, nationality of father and mother, married or single, etc.*

Blank number.	Branch of occupation.	Birthplace.	Nationality of father.	Nationality of mother.	Mar., single, wid.	Children in family.
7,876	Knitting mach.	New Hampshire.	American.....	American....	S.	
8,345	Hosiery mach.	New Hampshire.	American.....	American....	M.	
8,469	Machinist.....	England	English	English	M.	
8,623	Knitting mach.	New Hampshire.	American.....	American....	M.	2
8,649	Machinist.....	New Hampshire.	American.....	American....	M.	3
8,810	Repairer.....	New Hampshire.	American.....	American....	S.	
8,932	Machinist.....	New Hampshire.	American.....	American....	M.	
9,550	Machinist.....	New Hampshire.	American.....	American....	M.	2
9,561	Machinist.....	New Hampshire.	American.....	American....	M.	
9,569	Knitting mach.	New Hampshire.	American.....	American....	M.	
9,578	Hosiery mach.	New Hampshire.	American.....	American....	M.	2
10,146	Machinist... ..	Massachusetts ..	Irish	Irish.....	M.	4

IRON MOLDERS.

TABLE 43.—*Showing branch of occupation, birthplace, etc.*

18	Locomotive ...	New Hampshire.	American.....	American....	M.	
677	Bench	Vermont.....	American.....	American....	M.	
951	Decorative	Maine.....	Irish	Irish	S.	
996	Machinery	New Hampshire.	American.....	American....	M.	
997	Machinery	Massachusetts ..	American.....	American....	M.	3
1,556	Bench	Ireland	Irish	Irish	S.	
1,690	Sewer-pipe....	Ireland	Irish	Irish	W.	6
1,777	Molder..... ..	New Hampshire.	Irish	Irish	M.	1
2,461	Molder.....	Ireland	Irish	Irish	S.	
2,817	Molder.....	Massachusetts ..	Irish	Irish	M.	3
3,476	Light casting..	New Hampshire.	American.....	American....	M.	3
4,411	Stove plate....	New Hampshire.	Irish	Irish	W.	1
4,510	Machinery	Ireland	Irish	Irish	M.	2
4,545	Molder.....	New Hampshire.	Irish	Irish	S.	
4,930	Molder.....	New Hampshire.	Irish	Irish	S.	

INDIVIDUAL REPORTS.

MACHINISTS.

Showing school conditions, age began work, years in occupation, hours employed weekly, number of days unemployed and cause of non-employment, wage conditions, etc.

No. at school.	Weeks at school.	Dependent in fam.	Age began work.	Yrs. in occupation	With employer.	Hours weekly.	Hours Saturday.	Days unemployed during year.	Cause of non-employment.	Wages per week.	Wages decreased.	Weekly reduction.	Wages paid.
..	..	3	12	10	5	55	5	78	No work	$13.50	no	.....	Weekly.
..	..	3	18	11	1	60	9	270	Hard times	10.50	yes	$3.00	Monthly.
..	..	2	9	25	..	..	..	....	.....	.....	....	.....	Fortnightly.
..	..	4	14	7	..	59	9	134	.....	9.50	yes	2.25	Weekly.
3	39	5	10	28	2	60	9	10	No work	13.50	yes	1.50	Weekly.
..	..	..	16	3	3	72	12	12	Vacation	9.00	no	.....	Weekly.
..	..	3	14	40	20	44	5	....	.....	13.50	no	.....	Monthly.
2	36	4	16	25	2	59	9	....	.....	15.00	yes	3.00	Fortnightly.
..	..	2	17	30	11	59	9	50	No work	15.00	no	.....	Monthly.
..	..	3	6	13	9	59	9	200	No work	13.50	no	.....	Weekly.
2	35	4	16	16	12	59	9	150	Hard times	13.50	yes	1.50	Monthly.
2	30	7	10	25	1	59	9	75	Vacation	9.00	no	.....	Fortnightly.

IRON MOULDERS.

Showing school conditions, age began work, etc.

..	..	2	16	26	26	60	10	225	No work	$12.50	yes	$1.25	Fortnightly.
..	..	2	22	40	4	54	9	25	No work	10.00	no	.....	Weekly.
..	..	..	16	15	5	60	10	100	Vacation	14.00	yes	2.50	Weekly.
..	..	2	17	20	9	60	10	22	Vacation	15.00	no	.....	Weekly.
..	..	6	15	13	3	60	10	50	Vacation	11.50	yes	3.50	Weekly.
..	..	..	13	7	2	60	10	150	No work	9.00	yes	3.00	Weekly.
3	36	7	9	2	2	60	10	100	No work	9.00	no	.....	Monthly.
..	..	3	7	8	8	54	9	100	No work	10.50	no	.....	Weekly.
..	..	3	14	27	12	56	6	70	No work	11.50	yes	1.00	Fortnightly.
1	36	5	17	30	..	60	10	35	No work	15.00	no	.....	Weekly.
2	36	5	18	10	10	59	9	20	Vacation	16.00	yes	3.00	Weekly.
1	24	2	10	10	1	60	10	....	.....	13.50	yes	1.25	Weekly.
1	36	5	18	30	25	50	8	6	Hard times	15.00	no	.....	Weekly.
..	..	..	15	7	6	60	10	....	.....	12.00	no	.....	Weekly.
..	..	..	13	12	11	59	9	90	Hard times	11.50	yes	1.50	Weekly.

INDIVIDUAL REPORTS.

MACHINISTS.

TABLE 42 (CONCLUDED).—*Showing individual earnings, income from other sources and total income, living expenses, savings account, home conditions, etc.*

Blank number.	Wages withheld.	No. days' pay.	Individual earnings of self during year.	Income from other sources.	Total income.	Living expenses (single).	Living expenses (with family).	Earn more than family expenses.	Wages of wife or children required.	Savings bank account.	Saved earnings.	Own a home.	Estimated value of home.	Home incumbered
7,876	no	..	$553	.....	$553	$553	.....	no	....	yes	no	no	.....	....
8,345	yes	12	125	.....	125	.....	.....	no	....	yes	no	no	.....	....
8,469	no	..	.....	.....	.....	.....	.....	yes	....	....	....	yes	.....	no
8,623	yes	8	325	.....	325	.....	.....	yes	....	no	no	yes	.....	yes
8,649	no	..	742	225	967	.....	$817	yes	....	yes	no	yes	$3,000	no
8,810	no	..	468	.....	468	300	.....	yes	....	no	no	no	.....	....
8,932	no	..	.....	.....	.....	.....	.....	yes	....	....	....	yes	3,000	no
9,550	no	..	624	.....	624	.....	500	yes	....	yes	yes	no	.....	....
9,561	no	..	645	164	809	.....	.....	yes	....	yes	no	yes	3,500	no
9,569	no	..	224	100	324	.....	.....	yes	....	yes	yes	yes	3,000	no
9,578	yes	15	108	.....	108	.....	.....	yes	no	no	yes	yes	1,500	yes
10,146	no	..	387	150	537	.....	.....	no	yes	no	no	yes	.....	yes

IRON MOLDERS.

TABLE 43 (CONCLUDED).—*Showing individual earnings, income, etc.*

18	yes	3	$157	$275	$432	.....	$432	no	yes	yes	no	no	.....	....
677	yes	7	500	250	750	.....	500	no	no	yes	yes	no	.....	....
951	yes	6	466	.....	466	$350	.....	yes	....	no	no	no	.....	....
996	yes	6	725	.....	725	.....	675	yes	no	no	yes	no	.....	....
997	no	..	500	.....	500	.....	614	no	....	no	no	yes	$700	no
1,556	yes	7	300	.....	300	.....	.....	yes	....	no	no	no	.....	....
1,690	no	..	300	.....	300	.....	.....	no	....	no	no	yes	1,800	yes
1,777	no	..	346	.....	346	.....	300	no	....	no	no	no	.....	....
2,461	no	..	190	90	280	.....	225	no	....	no	no	yes	1,200	no
2,817	no	..	690	.....	690	.....	.....	....	....	no	no	no	.....	....
3,476	no	..	.....	.....	860	.....	910	no	...	yes	no	no	.....	....
4,411	no	..	.....	.....	.....	.....	300	....	....	no	no	no	.....	....
4,510	yes	6	780	.....	780	.....	850	no	....	yes	no	yes	1,500	no
4,545	yes	6	600	.....	600	.....	.....	yes	....	no	yes	no	.....	....
4,930	no	..	270	.....	270	.....	.....	no	....	no	no	yes	1,100	yes

INDIVIDUAL REPORTS.

MACHINISTS.

Showing home conditions, board per week with room, number of fraternal orders connected with, amount yearly dues, weekly benefits, death benefits, trade union, etc.

Ins. against fire.	No. rooms occ'p'd.	Sanitary condition of home.	Occupy tenement.	Monthly rent.	No. rooms occ'p'd.	Sanitary condition of tenement.	Board per week, including room.	Keep account of living expenses.	Take books from public library.	No. frat'l orders.	Am't yearly dues, assessments, etc.	Weekly benefits.	Death benefits payable to family.	Belong to trade union.
....	..	.....	yes	$10.00	5	good	.....	yes	no	2	$6.00	$2.00	$1,000	no
....	..	.....	no	.....	..	.....	$6.00	yes	yes	..	.....	.....	.....	no
yes	6	good	no	.....	..	.....	.....	no	yes	1	2.00	.....	.....	no
yes	6	good	no	.....	..	.....	.....	no	yes	2	20.00	2.00	2,000	no
yes	9	good	yes	16.00	6	good	.....	yes	yes	..	.....	.....	.....	no
....	..	.....	no	.....	..	.....	3.00	no	no	1	6.00	.....	.....	no
yes	6	good	no	.....	..	.....	.....	no	yes	2	.....	.....	3,000	no
....	..	.....	yes	10.00	7	good	.....	no	no	4	22.00	2.00	1,100	no
yes	7	good	no	.....	..	.....	.....	no	no	1	20.00	2.00	1,045	no
yes	6	good	no	.....	..	.....	.....	no	no	1	10.00	.....	1,000	no
yes	6	good	no	.....	..	.....	.....	no	yes	1	15.00	.....	2,000	no
yes	6	good	no	.....	..	.....	.....	no	yes	..	.....	.....	.....	no

IRON MOLDERS.

Showing home conditions, fraternal statistics, etc.

....	..	.....	..	...	.....	..	.....	$6.50	no	no	3	$85.00	$10.00	$1,200	yes
....	..	.....	yes	$10.00	4	good	.....	yes	yes	1	27.00	5.00	2,000	no
....	..	.....	.....	.....	..	.....	4.00	no	no	..	.....	.....	.....	no
....	..	.....	yes	11.00	6	good	.....	no	no	..	.....	.....	.....	no
yes	4	good	no	.....	..	.....	....	yes	no	..	.....	.....	.....	no
....	..	.....	.....	.....	..	.....	4.00	no	yes	1	.....	6.00	100	no
yes	7	good	no	.....	..	.....	.....	no	yes	..	.....	.....	.....	no
....	..	.....	yes	8.00	3	fair	.....	no	no	2	6.00	5.00	50	no
yes	7	good	no	.....	..	.....	.....	yes	no	..	.....	.....	.....	no
....	..	.....	yes	.....	3	.....	.....	no	no	..	.....	.....	.....	yes
....	..	.....	yes	18.00	9	fair	.....	no	no	..	.....	.....	.....	no
....	..	.....	.....	.....	..	.....	6.00	no	no	..	.....	.....	.....	no
yes	9	good	no	.....	..	.....	.....	no	yes	3	25.00	14.00	250	no
....	..	.....	.....	.....	..	.....	4.00	yes	no	1	.....	.....	100	yes
yes	6	good	no	.....	..	.....	.....	no	yes	1	6.00	5.00	100	no

INDIVIDUAL REPORTS.

IRON MOLDERS.

TABLE 43 (CONTINUED).—*Showing branch of occupation in which engaged, birthplace of person reporting, nationality of father and mother, married or single, etc.*

Blank number.	Branch of occupation.	Birthplace.	Nationality of father.	Nationality of mother.	Mar., single, wid.	Children in family.
4,982	Bench.....	New Hampshire.	Irish	Irish	M.	
5,540	Machinery ..	New Hampshire.	Irish	Irish	M.	4
6,437	Molder.....	Massachusetts ..	Scotch.....	Scotch	M.	
6,923	Superint'nd't	New Hampshire.	American.....	American....	M.	1
6,939	Molder.... ..	Ireland	Irish	Irish.....	M.	4
7,377	Molder.....	New Hampshire.	German	English.....	S.	
8,279	Molder.....	New Hampshire.	American.....	American....	M.	
8,565	Molder.....	New Hampshire.	American.....	American....	M.	5
8,635	Molder.....	New Hampshire.	Scotch.....	American....	M.	3
8,792	Molder.....	Iowa	Irish	Irish	S.	

NEEDLE MAKERS.

TABLE 44.—*Showing branch of occupation, birthplace, etc.*

6,516	Sawer.....	Quebec.	Canadian	French	W.	1
6,584	Needle mak'r	Canada	Canadian	American....	M.	
7,878	Needle mak'r	New Hampshire.	American.....	American....	M.	2
8,648	Finisher	New York.....	American.....	American....	M.	1
9,526	Latch maker	New Hampshire.	American.....	American....	M.	1

PATTERN MAKERS.

TABLE 45.—*Showing branch of occupation, birthplace, etc.*

2,811	Pattern m'kr	New Hampshire.	American.....	American....	M.	3
2,854	Pattern m'kr	Maine.....	American.....	American....	M.	
5,061	Pattern m'kr	New York.....	American.....	German	M.	
6,223	Foreman.....	New Hampshire.	American.....	American....	M.	
8,677	Pattern m'kr	New Hampshire.	American.....	American....	M.	
8,962	Pattern m'kr	Vermont.....	American.....	American....	M.	1
9,499	Jobber.....	New Hampshire.	American.....	American....	M.	

INDIVIDUAL REPORTS.

IRON MOLDERS.

Showing school conditions, age began work, years in occupation, hours employed weekly, number of days unemployed and cause of non employment, wage conditions, etc.

No. at school.	Weeks at school.	Dependent in fam.	Age began work.	Yrs. in occupation	With employer.	Hours weekly.	Hours Saturday.	Days unemployed during year.	Cause of non-employment.	Wages per week.	Wages decreased.	Weekly reduction.	Wages paid.
..	..	2	11	10	6	60	10	104	Sickness	$8.50	....	.....	Weekly.
1	22	6	12	35	28	60	10	120	No work	12.00	no	.....	Fortnightly.
..	..	2	18	2	2	..	..	....	.....	15.00	no	.....	Monthly.
1	33	4	10	30	2	60	9	40	Hard times	21.00	....	.....	Monthly.
2	36	6	9	20	11	60	10	60	No work	12.00	no	.....	Weekly.
..	..	2	14	2	2	59	9	40	No work	7.50	yes	.75	Weekly.
..	..	2	17	45	..	48	8	12	No work	27.00	no	.....	Fortnightly.
4	36	7	15	15	8	59	9	90	No work	12.00	yes	6.00	Fortnightly.
2	34	4	16	13	13	52	8	63	No work	13.00	yes	2.00	Weekly.
..	..	..	12	10	4	60	10	60	No work	12.00	yes	.75	Weekly.

NEEDLE MAKERS.

Showing school conditions, age began work, etc.

1	..	2	17	17	17	60	10	60	No work	$12.00	no	.....	Weekly.
..	..	2	..	18	18	60	10	52	No work	10.50	no	.....	Weekly.
2	42	4	..	15	4	55	5	....	.....	12.00	no	.....	Weekly.
1	12	4	..	13	13	59	9	35	No work	13.50	no	.....	Weekly.
1	40	3	20	13	4	59	9	....	.....	15.00	no	.....	Weekly.

PATTERN MAKERS.

Showing school conditions, age began work, etc.

3	40	5	16	34	34	59	9	75	No work	$12.00	no	.....	Monthly.
..	..	2	8	14	14	40	..	....	.....	15.00	no	.....	Weekly.
..	..	3	14	25	6	36	..	100	No work	15.00	no	.....	Fortnightly.
..	..	2	..	38	20	60	8	30	Shutdown	22.00	....	.....	Fortnightly.
..	..	3	22	42	16	59	9	75	Sickness	13.50	no	.....	Weekly.
1	38	3	16	15	4	60	10	....	.....	.....	....	.....	
..	..	3	12	..	..	..	..	....	.....	12.00	no	.....	

INDIVIDUAL REPORTS.

IRON MOLDERS.

TABLE 43 (CONCLUDED).—*Showing individual earnings, income from other sources and total income, living expenses, savings account, home conditions, etc.*

Blank number.	Wages withheld.	No. days' pay.	Individual earnings of self during year.	Income from other sources.	Total income.	Living expenses (single).	Living expenses (with family).	Earn more than family expenses.	Wages of wife or children required.	Savings-bank account.	Saved earnings.	Own a home.	Estimated value of home.	Home incumbered
4,982	yes	8	$275	.....	$275	.....	.....	no	....	no	no	no	.....	....
5,540	yes	3	411	$130	541	.....	.....	no	yes	no	no	no	.....	....
6,437	no	..	.....	.....	.....	.....	.....	....	....	yes	no	yes	$3,000	no
6,923	yes	15	962	363	1,325	.....	.. ...	yes	no	yes	yes	yes	6,500	yes
6,939	no	..	500	150	650	.....	$500	yes	yes	no	no	yes	.....	yes
7,377	yes	8	325	.....	325	.....	.....	no	....	yes	yes	no	.....	....
8,179	no	..	1,300	150	1,450	.....	1,150	yes	....	....	....	no	.....	....
8,565	yes	2	414	.....	414	.....	414	no	yes	no	no	yes	3,000	yes
8,635	no	..	737	.....	737	.....	653	yes	....	yes	yes	yes	1,200	yes
8,792	yes	8	500	.....	500	$415	.....	....	....	yes	yes	no	.....	....

NEEDLE MAKERS.

TABLE 44 (CONCLUDED).—*Showing individual earnings, income, etc.*

6,516	no	..	$300	.....	$300	.....	$150	yes	....	no	yes	no	.....	....
6,584	no	..	455	$204	659	.....	300	yes	....	no	yes	yes	$3,500	yes
7,878	....	..	600	.....	600	.....	.....	yes	....	no	no	no	.....	....
8,648	no	..	630	.....	630	.....	.....	yes	....	....	....	yes	2,000	yes
9,526	no	..	646	250	896	.....	746	yes	....	no	yes	yes	4,000	yes

PATTERN MAKERS.

TABLE 45 (CONCLUDED).—*Showing individual earnings, income, etc.*

2,811	yes	10	$450	$475	$925	.....	.....	yes	no	yes	yes	yes	$7,500	no
2,854	no	..	600	800	1,400	.....	.....	yes	no	yes	yes	yes	4,000	no
5,061	yes	2	430	.....	430	.....	.....	yes	....	yes	no	no	.....	....
6,285	no	..	1,100	1,200	2,300	.....	.....	yes	....	no	yes	yes	7,000	no
8,677	no	..	500	300	800	.....	.....	yes	no	....	....	yes	2,500	no
8,962	....	..	.....	.....	640	.....	.....	....	yes	yes	yes	yes	3,500	no
9,499	....	..	....	.....	.....	.....	.....	....	....	....	....	yes	1,500	yes

INDIVIDUAL REPORTS.

IRON MOLDERS.

Showing home conditions, board per week with room, number of fraternal orders connected with, amount yearly dues, weekly benefits, death benefits, trade union, etc.

Ins. against fire.	No. rooms occ'p'd.	Sanitary condition of home.	Occupy tenement.	Monthly rent.	No. rooms occ'p'd.	Sanitary condition of tenement.	Board per week, including room.	Keep account of living expenses.	Take books from public library.	No. fra'l orders.	Am't yearly dues, assessments, etc.	Weekly benefits.	Death benefits payable to family.	Belong to trade union.
....	..	.....	yes	$10.00	6	good	.....	yes	yes	..	.....	.....	.....	....
....	..	.....	yes	11.00	6	good	.....	no	yes	3	$36.00	$5.00	$1,350	yes
yes	7	good	no	.....	..	.....	.....	no	yes	1	.....	.....	.....	no
yes	8	good	no	.....	..	.....	.....	no	no	1	6.00	4.00	.....	no
yes	5	good	no	.....	..	.....	.....	no	no	..	.....	.....	.....	no
....	..	.....	yes	12.00	..	good	.....	.....	no	..	.....	.....	.....	no
....	..	.....	yes	25.00	..	.....	.....	no	no	4	100.00	.....	4,500	no
yes	6	.....	no	.....	..	.....	.....	no	no	1	4.00	4.00	.....	no
yes	7	good	no	.....	..	.....	.....	yes	yes	2	12.00	2.00	1,000	no
....	..	.....	.....	.....	..	.....	$6.00	no	yes	1	10.00	5.00	100	yes

NEEDLE MAKERS.

Showing home conditions, fraternal statistics, etc.

....	..	.....	.....	.....	..	.....	$3.00	no	no	1	$16.00	$3.00	$2,000	no
yes	7	good	no	.....	..	.....	.....	yes	yes	1	50.00	.....	2,000	no
....	..	.....	yes	.....	..	good	.....	no	yes	..	.....	.....	.....	no
yes	8	good	no	.....	..	.....	.....	no	yes	1	16.00	.....	2,000	no
yes	7	good	no	.....	..	.....	.....	yes	yes	2	100.00	28.00	.....	no

PATTERN MAKERS.

Showing home conditions, fra'ernal statistics, etc.

yes	12	good	no	.....	..	.....	.....	no	yes	2	$13.00	$4.00	$4,000	no
yes	8	good	no	.....	..	.....	.....	no	no	2	36.00	5.00	2,050	no
....	..	.....	yes	$12.50	6	good	.....	no	no	1	3.00	.....	.....	no
yes	7	good	no	.....	..	.....	.....	no	no	2	8.00	.....	1,000	no
yes	8	good	no	.....	..	.....	.....	no	no	..	.....	.....	.....	no
yes	7	good	no	.....	..	.....	.....	yes	yes	5	.....	.....	.....	no
yes	12	good	no	.....	..	.....	.....	no	yes	..	.....	.....	.....	no

INDIVIDUAL REPORTS.

PRINTERS.

TABLE 46.—*Showing branch of occupation in which engaged, birthplace of person reporting, nationality of father and mother, married or single, etc.*

Blank number.	Branch of occupation.	Birthplace.	Nationality of father.	Nationality of mother.	Mar., single, wid.	Children in family.
7	Job	New Hampshire.	American	American	M.	1
1,617	Book and job	United States	American	American	M.	
1,620	Compositor	Massachusetts	American	American	S.	
1,648	Pressman	Vermont	American	American	S.	
1,773	Job	Nova Scotia	English	English	M.	3
1,840	Compositor	New Hampshire.	American	American	S.	
2,818	Compositor	New Hampshire.	American	American	M.	
2,825	News foreman.	New Hampshire.	American	American	M.	
2,874	Job foreman	New Hampshire.	American	American	M.	3
2,887	Book comp'tor	New Hampshire.	American	American	M.	
2,896	Compositor	Ohio	American	American	S.	
2,928	Ad. compositor	New Hampshire.	American	American	S.	
3,141	Pressman	Maine	American	English	S.	
3,433	Book comp	New Hampshire.	American	American	S.	
3,440	Job	Ontario	Irish	Canadian	M.	1
3,463	Maker-up	New Hampshire.	American	American	M.	2
3,504	Book comp	New Hampshire.	American	American	S.	
3,671	Book comp	Massachusetts	American	American	M.	2
5,328	Compositor	New York	American	American	M.	1
5,384	Book comp	Massachusetts	American	American	M.	
5,408	Book foreman.	New Hampshire.	American	American	M.	
5,420	Press feeder	New Hampshire.	American	American	S.	
6,214	Book comp	New Hampshire.	American	American	M.	
6,394	News comp	Vermont	American	American	M.	
6,599	Pressman	England	Irish	Irish	M.	
6,612	News foreman.	New Hampshire.	American	American	M.	1
6,740	Pressman (ap.)	Sweden	Swede	Swede	S.	
7,875	Compositor	New Hampshire.	American	American	S.	
7,973	Compositor	New Jersey	American	American	M.	3
8,313	Compositor	New Hampshire.	Irish	English	S.	
8,493	Job	Massachusetts	American	American	S.	
8,502	Job	New Hampshire.	American	English	M.	
8,515	Compositor	New Hampshire.	American	American	M.	
8,686	Pressman	New Hampshire.	Scotch	English	S.	
9,197	Compositor	New Hampshire.	American	American	S.	
9,459	News foreman.	New Hampshire.	American	American	S.	
9,662	Press feeder	Maine	Irish	American	S.	
9,919	Pressman (ap.)	New Hampshire.	American	American	S.	
9,948	Pressman (ap.)	New Hampshire.	American	American	S.	

INDIVIDUAL REPORTS.

PRINTERS.

Showing school conditions, age began work, years in occupation, hours employed weekly, number of days unemployed and cause of non-employment, wage conditions, etc.

No. at school.	Weeks at school.	Dependent in fam.	Age began work.	Yrs. in occupation.	With employer.	Hours weekly.	Hours Saturday.	Days unemployed during year.	Cause of non-employment.	Wages per week.	Wages decreased.	Weekly reduction.	Wages paid.
..	..	3	..	10	5	60	10	24	Vacation	$15.00	inc	.....	Weekly.
..	..	2	15	45	..	..	..	....	.....	.....	....	.....	
..	..	..	15	3	3	60	10	....	.....	12.00	yes	$0.50	Weekly.
..	..	..	17	2	1	36	6	....	.....	8.00	....	.....	Weekly.
..	..	6	13	12	1	55	5	18	No work	11.00	....	.....	Weekly.
..	..	..	17	3	3	60	10	...	.....	9.00	no	.....	Weekly.
..	..	4	10	7	4	59	9	15	Vacation	13.50	no	.....	Weekly.
..	..	2	16	11	4	59	9	....	.....	15.00	no	.....	Weekly.
2	38	7	15	21	3	59	9	45	Sickness	20.00	no	.....	Weekly.
..	..	2	19	4	3	59	9	....	.....	9.00	no	.....	Weekly.
..	..	..	23	9	1	59	9	12	Sickness	10.00	no	.....	Weekly.
..	..	..	19	6	6	60	10	...	.....	12.00	no	.....	Weekly.
..	..	3	14	20	2	59	9	...	.....	14.00	yes	.....	Weekly.
..	..	..	18	3	2	59	9	150	No work	12.00	no	.....	Weekly.
..	..	3	17	14	2	59	9	15	Vacation	15.00	no	.....	Weekly.
2	36	4	16	24	23	59	9	30	Vacation	15.00	no	.....	Weekly.
..	..	..	22	7	5	59	9	30	Vacation	13.50	no	.....	Weekly.
..	..	4	19	20	1	59	9	14	Sickness, vacation	12.00	yes	3.00	Weekly.
1	36	3	..	10	7	60	10	....	.....	16.00	no	.....	Weekly.
..	..	2	19	25	..	59	9	....	.....	12.00	....	.....	Weekly.
..	..	2	14	19	3	59	9	10	Vacation	15.00	no	.....	Weekly.
..	..	..	15	3	3	59	9	18	Vacation	7.50	no	.....	Weekly.
..	..	2	9	43	1	59	9	40	Sickness	9.00	yes	1.50	Weekly.
..	..	2	16	50	..	..	..	....	.....	12.00	no	.....	Weekly.
..	..	2	10	16	8	60	10	....	.....	12.00	no	.....	Weekly.
1	36	5	11	29	4	59	9	....	.....	18.00	no	.....	Weekly.
..	..	..	16	2	2	60	10	....	.....	5.00	no	.....	Weekly.
..	..	2	14	16	15	60	10	....	.....	12.00	no	.....	Weekly.
1	12	5	14	14	2	60	10	12	Vacation	12.00	no	.....	Monthly.
..	..	..	18	10	1	59	9	....	.....	12.00	no	.....	Weekly.
..	..	..	15	10	8	60	10	18	Vacation	12.00	no	.....	Weekly.
..	..	2	16	14	14	59	9	....	.....	12.00	no	.....	Weekly.
..	..	2	15	40	4	59	9	183	No work	10.00	no	.....	Fortnightly.
..	..	..	19	12	3	59	9	120	No work	13.50	no	.....	Weekly.
..	..	..	16	8	8	60	10	14	Vacation	11.00	no	.....	Monthly.
..	..	..	17	5	1	60	10	90	No work	9.00	no	.....	Weekly.
..	..	..	16	2	1	54	5	12	Sickness	6.00	no	.....	Weekly.
..	..	..	..	..	..	60	10	....	.....	.....	....	.....	Weekly.
..	..	..	15	4	3	57	9	....	.....	6.00	....	.....	Monthly.

INDIVIDUAL REPORTS.

PRINTERS.

TABLE 46 (CONCLUDED).—*Showing individual earnings, income from other sources and total income, living expenses, savings account, home conditions, etc.*

Blank number.	Wages withheld.	No. days' pay.	Individual earnings of self during year.	Income from other sources.	Total income.	Living expenses (single).	Living expenses (with family).	Earn more than family expenses.	Wages of wife or children required.	Savings bank account.	Saved earnings.	Own a home.	Estimated value of home.	Home incumbered
7	no	..	$650	$30	$680	.....	.....	no	...	no	no	no	.....	....
1,617	....	..	.....	.....	.....	.....	.....	....	....	....	....	no	.....	....
1,620	no	..	600	.....	600	.....	.....	....	....	yes	yes	yes	$2,000	yes
1,648	yes	3	400	.....	400	.....	.....	....	....	yes	yes	no	.....	....
1,773	no	..	528	44	572	.....	.. ...	no	....	no	no	no	.....	....
1,840	no	..	450	.....	450	.....	.....	yes	....	yes	yes	no	.....	....
2,818	yes	1	700	300	1,000	.....	$500	yes	no	no	yes	yes	1,000	no
2,825	yes	1	750	.....	750	.....	.....	yes	no	yes	yes	no	.....	....
2,874	yes	1	1,040	.....	1,040	.....	1,040	no	....	no	no	no	.....	....
2,887	yes	1	450	.....	450	.....	260	yes	....	no	yes	no	.....	....
2,896	yes	1	500	6	506	$312	.....	yes	....	yes	yes	no	.....	....
2,928	no	..	600	.....	600	.....	.....	yes	....	yes	yes	no	.....	....
3,141	yes	1	700	.....	700	.....	.....	yes	....	yes	yes	no	.....	....
3,433	no	..	300	.....	300	.....	.....	no	....	no	no	no	... .	....
3,440	yes	1	750	.....	750	.....	700	yes	....	yes	yes	no	.....	....
3,463	yes	1	720	.....	720	.....	.....	....	....	....	....	no	.....	....
3,504	no	..	600	.....	600	250	.....	yes	....	yes	yes	no	.....	....
3,671	yes	1	670	.....	670	.....	670	no	....	no	no	no	.....	....
5,328	no	..	.....	.....	.....	.....	.....	yes	....	no	yes	no	.....	....
5,384	no	..	600	.....	600	.....	.....	yes	...	yes	yes	no	.....	....
5,408	no	..	750	.....	750	.....	750	no	....	no	no	no	.....	....
5,420	no	..	367	.....	367	.....	.....	....	....	....	....	no	.....	....
6,214	yes	1	405	72	477	.....	477	no	....	yes	no	no	.....	....
6,394	no	..	600	.....	600	.....	.....	....	....	....	....	yes	3,000	no
6,599	no	..	624	.....	624	.....	624	no	....	no	no	no	.....	....
6,612	....	..	900	200	1,100	.....	700	yes	....	yes	yes	yes	1,000	no
6,740	no	..	250	.....	250	200	.....	no	....	no	no	no	.....	....
7,875	no	..	600	50	650	.....	.....	yes	....	yes	yes	no	.....	....
7,973	....	..	600	.....	600	.....	540	no	....	no	no	no	.....	....
8,313	....	..	264	.....	264	264	.....	no	....	no	no	no	.....	....
8,493	no	..	540	.....	540	.....	.....	....	....	yes	yes	no	.....	....
8,502	no	..	600	.....	600	.....	.....	yes	....	no	yes	yes	1,000	no
8,515	no	..	275	360	635	.....	635	no	....	no	no	yes	2,500	yes
8,686	yes	1	405	.....	405	400	.....	no	....	yes	no	no	.....	....
9,197	....	..	550	.....	550	400	.....	yes	....	yes	yes	no	.....	....
9,459	no	..	390	.....	390	225	.....	yes	....	yes	yes	no	.....	....
9,662	no	..	300	.....	300	.....	.....	yes	....	yes	yes	no	.....	....
9,919	no	..	.....	.....	.....	.....	.....	no	....	yes	no	yes	7,000	no
9,948	no	..	.....	.....	.....	.....	.....	....	....	....	....	no	.....	....

INDIVIDUAL REPORTS.

PRINTERS.

Showing home conditions, board per week with room, number of fraternal orders connected with, amount yearly dues, weekly benefits, death benefits, trade union, etc.

Ins. against fire.	No. rooms occ'p'd.	Sanitary condition of home.	Occupy tenement.	Monthly rent.	No. rooms occ'p'd.	Sanitary condition of tenement.	Board per week, including room.	Keep account of living expenses.	Take books from public library.	No. fra'l orders.	Am't yearly dues, assessments, etc.	Weekly benefits.	Death benefits payable to family.	Belong to trade union.
....	..	.....	yes	$12.00	7	fair	.....	no	no	4	$17.00	$10.00	$200	yes
....	..	.....	.....	.....	..	.....	$4.50	no	yes	2	100.00	5.00	6,000	yes
yes	7	good	no	.....	..	.....	5.00	yes	yes	..	.....	.....	.....	....
....	..	.....	no	.....	..	.....	3.50	no	yes	..	.....	.....	.....	no
....	..	.....	yes	8.00	4	good	.....	yes	.....	..	.....	.....	500	yes
....	..	.....	no	.....	..	.....	.....	no	.....	1	2.00	.....	.....	....
yes	..	.....	yes	17.00	7	good	.....	no	yes	1	8.00	4.00	2,100	yes
....	..	.....	yes	10.00	3	good	.....	no	yes	1	5.00	.....	.....	yes
....	..	.....	yes	11.00	7	good	.....	no	yes	..	.....	.....	1,000	yes
....	..	.....	no	.....	..	.....	4.50	.....	.....	1	2.00	.....	2,000	yes
....	..	.....	no	.....	..	.....	4.00	no	.....	1	5.00	.....	.....	yes
....	..	.....	no	.....	..	.....	.....	no	no	..	.....	.....	.....	yes
....	..	.....	no	.....	..	.....	5.00	no	.....	1	7.00	5.00	50	yes
....	..	.....	no	.....	..	.....	4.00	yes	yes	3	40.00	.....	.....	no
....	..	.....	yes	15.00	7	fair	.....	no	no	..	.....	.....	1,000	yes
....	..	.....	yes	15.00	10	fair	.....	no	yes	1	20.00	5.00	1,000	yes
....	..	.....	no	.....	..	.....	4.50	no	no	1	3.00	.....	.....	yes
....	..	.....	yes	12.00	7	good	.....	yes	yes	1	5.00	.....	50	yes
....	..	.....	yes	12.00	5	good	.....	no	yes	4	50.00	10.00	1,200	yes
....	..	.....	yes	12.50	5	good	.....	no	no	2	11.00	7.00	100	yes
....	..	.....	yes	12.50	5	fair	.....	no	no	..	.....	.....	.....	yes
....	..	.....	no	.....	..	.....	4.00	no	no	..	.....	.....	.....	no
....	..	.....	yes	14.00	7	fair	.....	yes	yes	2	8.00	2.00	1,400	no
yes	8	good	no	.....	..	.....	.....	yes	.....	..	.....	.....	.....	no
....	..	.....	yes	15.00	6	good	.....	yes	no	..	.....	.....	....	no
yes	6	good	no	.....	..	.....	.....	yes	yes	1	6.00	5.00	50	yes
....	..	.....	no	.....	..	.....	3.25	no	yes	1	3.00	.....	.....	no
....	..	.....	yes	10.00	8	good	.....	no	no	1	5.00	4.00	.....	no
....	..	.....	yes	9.00	4	good	.....	yes	yes	..	.....	.....	.....	no
....	..	.....	no	.....	..	.....	4.50	no	no	3	12.00	6.00	200	no
....	..	.....	no	.....	..	.....	5.00	yes	yes	2	11.00	4.00	.....	no
yes	6	good	no	.....	..	.....	.....	no	no	2	25.00	3.00	3,000	no
yes	6	good	no	.....	..	.....	.....	no	yes	2	5.00	.....	1,500	yes
....	..	.....	no	.....	..	.....	4.00	no	no	1	6.00	7.00	.....	yes
....	..	.....	no	.....	..	.....	5.00	yes	yes	..	.....	.....	.....	no
....	..	.....	no	.....	..	.....	3.50	yes	yes	..	.....	.....	.....	no
....	..	.....	no	.....	..	.....	3.00	no	yes	..	.....	.....	.....	no
yes	15	good	no	.....	..	.....	.....	yes	yes	..	.....	.....	.....	no
....	..	.....	no	.....	..	.....	2.00	.....	.....	..	.....	.. .	.....	....

INDIVIDUAL REPORTS.

RAILROADING.

TABLE 47.—*Showing branch of occupation in which engaged, birthplace of person reporting, nationality of father and mother, married or single, etc.*

Blank number.	Branch of occupation.	Birthplace.	Nationality of father.	Nationality of mother.	Mar., single, wid.	Children in family.
149	Brakeman.....	New Hampshire.	American.....	American....	S.	
174	Brakeman.....	New Hampshire.	American.....	American...	M.	1
300	Engineer	Maine.....	American.....	American....	M.	6
322	Agent	Massachusetts ..	Irish.....	Irish.....	S.	
330	Pumpman.....	Maine.....	American.....	American....	S.	
675	Conductor.....	Vermont	American.....	American....	M.	2
730	Telegrapher ...	New Hampshire.	American.....	American....	S.	
734	Fireman	New Hampshire.	American.....	American....	M.	
816	Baggageman ..	New Hampshire.	American.....	American....	S.	
909	Fireman	New Hampshire.	American.....	American....	M.	
2,024	Conductor.	Massachusetts ..	American.....	American....	M.	1
2,105	Fireman.....	New Hampshire.	American.....	American....	M.	1
2,153	Clerk.....	New Hampshire.	American.....	American....	S.	
2,540	Engineer.....	Vermont.....	American.....	American....	M.	
2,597	Station agent..	New Hampshire.	American.....	American....	M.	
2,613	Freightman....	New Hampshire.	American.....	American....	M.	
2,731	Baggageman..	Illinois.....	American.....	American.....	S.	
2,747	Chief clerk	New Hampshire.	English.....	American....	M.	
2,771	Engineer.....	New Hampshire.	American.....	American....	M.	2
2,799	Switchman. ...	New Hampshire.	American.....	American....	M.	
2,807	Freight cond..	Massachusetts ..	American.....	American....	M.	1
2,821	Machinist.....	New Hampshire.	American.....	American....	M.	2
2,999	Engineer.....	New Hampshire.	American.....	American....	M.	1
3,044	Brakeman.....	New Hampshire.	American.....	American....	M.	
3,058	Machinist.....	New Hampshire.	American.....	American....	M.	2
3,488	Machinist.....	New Hampshire.	Canadian.....	Canadian.....	M.	1
3,626	Machinist.....	New Hampshire.	Irish.....	Irish	S.	
3,721	Cashier.....	New Hampshire.	American.....	American....	M.	
4,375	Repairer.....	New Hampshire.	American.....	American....	M.	3
4,422	Blacksmith....	Ireland	Irish.....	Irish	M.	
4,668	Fireman.....	New Hampshire.	American.....	American...	M.	1
4,778	Engineer.....	New Hampshire.	American.....	American....	M.	
4,782	Engineer.....	New York.	American.....	American....	M.	
4,797	Fireman.....	Vermont.....	American.....	American....	W.	3
5,228	Fireman.....	New Hampshire.	American.....	American....	M.	
5,363	Electrician....	New Hampshire.	American.....	American....	M.	1

INDIVIDUAL REPORTS.

RAILROADING.

Showing school conditions, age began work, years in occupation, hours employed weekly, number of days unemployed and cause of non-employment, wage conditions, etc.

No. at school.	Weeks at school.	Dependent in fam.	Age began work.	Yrs. in occupation.	With employer.	Hours weekly.	Hours Saturday.	Days unemployed during year.	Cause of non-employment.	Wages per week.	Wages decreased.	Weekly reduction.	Wages paid.
..	..	..	19	4	4	45	8	....	.....	$14.00	no	.....	Weekly.
..	..	4	18	3	3	48	8	90	Accident.....	10.00	no	.....	Monthly.
5	34	8	15	10	10	50	10	100	Sickness	10.50	no	.....	Monthly.
..	..	3	14	5	3	60	10	....	.....	10.00	no	.....	Monthly.
..	..	..	21	4	4	60	10	30	.....	8.50	no	.....	Weekly.
..	..	5	16	11	7	72	12	....	.....	14.50	no	.....	Weekly.
..	..	..	16	12	3	74	14	....	.....	11.00	yes	$2.50	Monthly.
..	..	2	11	3	3	60	10	....	.....	12.00	no	.....	Weekly.
..	..	..	14	11	1	72	12	30	Vacation.....	10.00	no	.....	Monthly.
..	..	2	14	..	..	..	..	36	Sickness	10.50	yes	1.50	Weekly.
1	..	3	14	12	5	50	..	....	.....	10.50	no	.....	Monthly.
..	..	3	16	1	1	78	13	14	Vacation.....	12.00	no	.....	Weekly.
..	..	..	17	9	9	54	9	3	Vacation.....	14.00	no	.....	Weekly.
..	..	2	12	27	27	60	10	....	.....	21.00	no	.....	Weekly.
..	..	2	16	7	2	72	12	....	.....	12.00	no	.....	Monthly.
..	..	2	17	40	20	72	12	....	.....	13.00	....	.....	Weekly.
..	..	3	18	5	5	58	8	30	Vacation.....	11.00	no	.....	Monthly.
..	..	2	21	14	4	52	7	23	Vacation.....	16.00	no	.....	Monthly.
1	30	4	12	19	9	54	9	....	.....	19.00	....	.....	Monthly.
..	..	2	16	9	3	48	8	3	Vacation.....	12.00	no	.....	Monthly.
..	..	4	12	20	16	60	10	14	Sickness	12.50	no	.....	Monthly.
2	36	3	12	6	6	60	10	....	.....	12.00	no	.....	Monthly.
..	..	3	15	14	5	..	..	30	Vacation.....	19.00	....	.....	Monthly.
..	..	2	15	10	10	65	13	12	Vacation.....	11.50	no	.....	Weekly.
..	..	4	10	1	1	47	7	38	Hard times	7.00	no	.....	Weekly.
..	..	3	12	18	4	60	10	....	.....	12.50	yes	1.50	Monthly.
..	..	3	16	16	10	60	10	75	No work.....	12.50	yes	1.25	Monthly.
..	..	2	19	7	2	60	10	....	.....	12.00	no	.....	Monthly.
..	..	6	..	4	4	47	7	100	No work.....	9.00	no	.....	Weekly.
..	..	2	15	25	25	45	5	15	Sickness	13.50	no	.....	Monthly.
1	36	3	9	10	10	60	..	....	.....	12.00	no	.....	Weekly.
..	..	2	12	35	33	60	10	72	Sickness	18.00	yes	3.00	Monthly.
..	..	2	14	8	8	72	12	....	.....	17.50	yes	5.00	Monthly.
1	..	4	9	..	..	59	9	....	.....	7.50	no	.....	Monthly.
..	..	2	16	4	4	60	10	36	Vacation.....	12.00	no	.....	Monthly.
..	..	3	18	10	3	60	10	30	Sickness	10.50	no	.....	Monthly

INDIVIDUAL REPORTS.

RAILROADING.

TABLE 47 (CONCLUDED).—*Showing individual earnings, income from other sources and total income, living expenses, savings account, home conditions, etc.*

Blank number.	Wages withheld.	No. days' pay.	Individual earnings of self during year.	Income from other sources.	Total income.	Living expenses (single).	Living expenses (with family).	Earn more than family expenses.	Wages of wife or children required.	Savings-bank account.	Saved earnings.	Own a home.	Estimated value of home.	Home incumbered
149	no	..	$728	.....	$728	.....	.....	no	....	no	no	no	.....	....
174	yes	10	350	.....	350	.....	$500	no	....	no	no	no	.....	....
300	no	..	495	.....	495	.....	.....	yes	....	no	no	yes	$500	yes
322	no	..	480	.....	480	.....	.....	yes	....	no	yes	no	.....	....
330	....	..	427	$10	437	.....	.....	yes	....	no	yes	no	.....	....
675	yes	6	766	.....	766	.....	600	yes	no	no	yes	no	.....	....
730	no	..	517	.....	517	.....	.....	yes	....	yes	yes	no	.....	....
734	no	..	600	15	615	.....	.....	yes	....	yes	yes	no	.....	....
816	no	..	440	.....	440	$180	.....	yes	....	yes	yes	no	.....	....
909	....	..	440	.....	440	.....	.....	....	....	yes	yes	no	.....	....
2,024	yes	6	525	.....	525	.....	.....	yes	....	yes	yes	no	.....	....
2,105	....	..	425	.....	425	.....	.....	....	....	yes	yes	no	.....	....
2,153	no	..	697	.....	697	232	.....	yes	....	yes	yes	no	.....	....
2,540	no	..	1,100	.....	1,100	.....	500	yes	....	yes	yes	yes	1,500	no
2,597	no	..	600	.....	600	.....	.....	yes	...	yes	yes	no	.....	....
2,613	no	..	671	300	971	.....	800	no	no	yes	no	no	.....	....
2,731	no	..	540	100	640	450	.....	yes	....	no	no	no	.....	....
2,747	no	..	780	.....	780	.....	780	no	no	yes	no	no	.....	....
2,771	no	..	939	.....	939	.....	.....	yes	....	....	....	no	.....	....
2,799	no	..	633	.....	633	.....	500	yes	....	yes	yes	no	.....	....
2,807	no	..	598	.....	598	.....	598	no	....	no	no	no	.....	....
2,821	....	..	639	.....	639	.....	420	yes	....	yes	yes	no	.....	....
2,999	no	..	825	.....	825	.....	.....	yes	....	yes	yes	no	.....	....
3,044	no	..	500	.....	500	.....	500	no	....	no	no	no	.....	....
3,058	no	..	331	75	406	.....	.....	....	yes	yes	no	no	.....	....
3,488	no	..	690	.....	690	.....	.....	yes	yes	no	yes	yes	2,500	yes
3,626	no	..	550	.....	550	.....	550	no	....	no	no	no	.....	....
3,721	no	..	650	275	925	.....	500	yes	no	yes	yes	yes	3,000	no
4,375	yes	6	300	.....	300	.....	300	no	....	no	no	yes	1,000	yes
4,422	no	..	500	.....	500	.....	500	no	....	yes	no	yes	2,000	no
4,668	yes	6	626	195	821	.....	365	yes	....	no	yes	yes	2,000	yes
4,778	no	..	725	252	977	.....	.....	yes	...	yes	yes	yes	3,000	no
4,782	yes	7	880	.....	880	.....	800	yes	....	no	no	no	.....	....
4,797	no	..	400	.....	400	.....	400	no	no	yes	no	yes	900	yes
5,228	no	..	600	.....	600	.....	450	yes	....	no	yes	no	.....	....
5,363	no	..	522	.....	522	.....	522	no	....	no	no	no	.....	....

INDIVIDUAL REPORTS.

RAILROADING.

Showing home conditions, board per week with room, number of fraternal orders connected with, amount yearly dues, weekly benefits, death benefits, trade union, etc.

Ins. against fire.	No. rooms occ'p'd.	Sanitary condition of home.	Occupy tenement.	Monthly rent.	No. rooms occ'p'd	Sanitary condition of tenement.	Board per week, including room.	Keep account of living expenses.	Take books from public library.	No. frat'l orders.	Am't yearly dues, assessments, etc.	Weekly benefits.	Death benefits payable to family.	Belong to trade union.
....	..	.....	no	.....	..	.....	$4.50	yes	no	2	$27.00	.....	$2,000	no
....	..	.....	no	.....	..	.....	7.00	.....	.....	..	.....	.....	.....	no
no	9	good	no	.....	..	.....	.....	no	no	1	.....	.....	.....	no
....	..	.....	no	.....	..	.....	4.00	no	yes	1	20.00	$3.00	1,500	no
....	..	.....	no	.....	..	.....	3.50	no	no	..	.....	.....	.....	no
....	..	.....	yes	$12.00	6	good	.....	yes	no	..	.....	.....	.....	no
....	..	.....	no	.....	..	.....	4.00	no	yes	2	10.00	10.00	,000	no
....	..	.....	yes	8.00	7	good	.....	no	yes	3	28.00	6.00	1,500	yes
....	..	.....	no	.....	..	.....	3.50	yes	no	3	7.00	2.00	.....	no
....	..	.....	yes	12.00	4	good	.....	yes	no	..	.....	.....	.....	no
....	..	.....	yes	10.00	6	good	.....	no	no	1	4.00	.....	.....	no
....	..	.....	yes	12.00	6	good	.....	yes	no	..	.....	.....	1,000	no
....	..	.....	no	.....	..	.....	3.50	no	yes	1	18.00	.....	2,000	no
yes	10	good	no	.....	..	.....	.....	no	yes	2	6.00	.....	.....	no
....	..	.....	yes	8.00	5	good	.....	....	yes	..	.....	.....	.....	....
....	..	.....	yes	12.50	7	good	.....	no	yes	1	5.00	4.00	2,000	no
....	..	.....	yes	25.00	9	good	.....	no	yes	..	.....	.....	.....	no
....	..	.....	no	.....	..	.....	8.50	no	yes	..	.....	.....	.....	no
....	..	.....	yes	20.00	8	good	.....	no	yes	3	11.00	14.00	1,000	yes
....	..	.....	yes	9.75	7	poor	.....	no	no	..	.....	.....	.....	no
....	..	.....	yes	10.00	4	good	.....	yes	yes	1	20.00	8.00	1,000	no
....	..	.....	no	.....	..	.....	4.25	no	no	3	43.00	16.00	3,000	no
....	..	.....	yes	20.00	8	good	.....	no	yes	2	.....	6.00	2,000	yes
....	..	.....	yes	12.00	7	good	.....	no	no	..	.....	.....	.....	....
....	..	.....	yes	.....	..	.....	.....	yes	yes	2	.....	6.00	.....	no
yes	11	good	no	.....	..	.....	.....	no	yes	2	38.00	11.00	2,000	yes
....	..	.....	yes	12.00	7	good	.....	no	no	2	15.00	10.00	100	yes
no	6	good	no	.....	..	.....	8.00	.....	yes	..	.....	.....	.....	no
yes	7	good	no	.....	..	.....	.....	no	no	2	8.00	5.00	.....	no
yes	8	good	no	.....	..	.....	.....	.....	no	..	.....	.....	.....	no
yes	7	good	no	.....	..	.....	.....	yes	no	1	15.00	5.00	1,225	no
yes	6	good	no	.....	..	.....	.....	no	no	2	18.00	5.00	3,400	no
....	..	.....	no	.....	..	.....	8.00	no	no	1	6.00	.....	50	no
yes	10	good	no	.....	..	.....	.....	no	no	..	.....	....	.....	no
....	..	.....	yes	12.00	6	good	.....	no	no	2	28.00	9.00	1,500	no
....	..	.....	yes	17.00	..	fair	.....	no	no	1	8.00	.....	1,000	no

INDIVIDUAL REPORTS.

RAILROADING.

TABLE 47 (CONTINUED).—*Showing branch of occupation in which engaged, birthplace of person reporting, nationality of father and mother, married or single, etc.*

Blank number.	Branch of occupation.	Birthplace.	Nationality of father.	Nationality of mother.	Mar., single, wid.	Children in family.
5,397	Engineer	Massachusetts	American	American	M.	3
5,413	Machinist	Vermont	American	American	....	
5,416	Engineer	New Hampshire.	American	American	M.	
5,450	Engineer	New Hampshire.	American	American	M.	
5,581	Engineer	New Hampshire.	American	American	M.	2
5,611	Machinist	Massachusetts	American	American	M.	1
5,862	Flagman	Canada	French	Canadian	M.	7
5,911	Switchman	New Hampshire.	American	American	M.	
5,983	Brakeman	New Hampshire.	American	American	M.	1
5,988	Accountant	New Hampshire.	American	American	M.	1
6,043	Freight check.	New York	American	American	M.	
6,188	Fireman	Massachusetts	American	American	M.	
6,552	Track foreman	Ireland	Irish	Irish	M.	
6,701	Clerk	New Hampshire.	American	American	S.	
6,752	Engineer	New Hampshire.	American	American	M.	
6,753	Clerk	New Hampshire.	American	American	M.	
6,807	Conductor	New Hampshire.	American	American	M.	
6,951	Clerk	New Hampshire.	American	American	M.	1
6,982	Conductor	New Hampshire.	American	American	M.	1
6,994	Brakeman	Canada	Canadian	Canadian	M.	3
7,293	Fireman	Maine	American	American	M.	1
7,794	Machinist	Sweden	Swede	Swede	M.	3
7,799	Machinist	Massachusetts	American	American	M.	1
7,969	Machinist	New Hampshire.	American	American	M.	2
8,207	Clerk	Massachusetts	American	American	M.	
8,347	Carpenter	Canada	English	Scotch	M.	3
8,606	Engineer	New Hampshire.	American	American	M.	1
8,954	Machinist	New Hampshire.	American	American	M.	2
9,008	Fireman	New Hampshire.	American	American	M.	
9,137	Machinist	Vermont	American	American	M.	
9,248	Engineer	New Hampshire.	American	American	M.	2
9,371	Travel'g agent	New Hampshire.	American	American	W.	
9,398	Machinist	New Hampshire.	American	American	M.	
9,461	Trackman	Ireland	Irish	Irish	S.	
9,466	Engineer	New Hampshire.	American	American	M.	1
9,793	Freightman	Vermont	American	American	M.	
9,977	Machinist	New Hampshire.	American	American	M.	
	Cashier	Massachusetts	American	American	M.	4

INDIVIDUAL REPORTS.

RAILROADING.

Showing school conditions, age began work, years in occupation, hours employed weekly, number of days unemployed and cause of non-employment, wage conditions, etc.

No. at school.	Weeks at school.	Dependent in fam.	Age began work.	Yrs. in occupation.	With employer.	Hours weekly.	Hours Saturday.	Days unemployed during year.	Cause of non-employment.	Wages per week.	Wages decreased.	Weekly reduction.	Wages paid.
3	36	5	..	14	9	..	....	....	.....	$18.00	....	.....	Monthly.
..	..	..	21	..	..	..	....	....	.....	.....	....	.....	
..	..	2	15	49	17	54	9	1¼	Vacation.....	20.00	....	.....	Weekly.
..	..	2	16	26	23	..	..	44	Sickness.....	10.00	no	.....	Monthly.
1	36	4	13	1	1	66	11	3	Vacation.....	14.00	no	.....	Weekly.
1	36	3	16	20	2	60	10	17	No work.....	13.50	no	.....	Monthly.
3	36	9	12	1	1	72	12	....	.....	8.50	no	.....	Weekly.
..	..	2	15	13	4	72	12	....	.....	9.50	no	.....	Monthly.
..	..	3	18	10	10	74	14	....	.....	9.50	no	.....	Monthly.
1	36	3	16	14	5	52	7	....	.....	20.00	no	.....	Monthly.
..	..	2	21	4	2	60	10	12	Vacation.....	12.00	no	.....	Monthly.
..	..	2	10	5	5	36	6	....	.....	12.00	no	.....	Weekly.
..	..	2	11	11	7	59	9	12	Vacation.....	11.50	....	.....	Weekly.
..	..	..	18	2	2	59	9	....	.....	8.50	no	.....	Monthly.
..	..	4	16	5	5	..	....	....	.....	14.00	no	.....	Monthly.
..	..	2	16	11	11	52	7	....	.....	22.00	no	.....	Monthly.
..	..	2	33	13	7	72	12	....	.....	12.50	no	.....	Monthly.
..	..	3	17	6	2	59	9	....	.....	10.50	no	.....	Monthly.
1	36	3	14	25	8	47	8	....	.....	19.00	no	.....	Weekly.
1	36	5	16	6	2	60	10	....	.....	8.50	no	.....	Monthly.
..	..	3	12	20	4	48	8	60	No work.....	10.50	no	.....	Fortnightly.
3	36	5	17	30	5	44	4	....	.....	11.00	yes	$4.00	Monthly.
1	36	3	18	37	4	44	4	85	Sickness.....	14.50	....	.....	Monthly.
2	30	4	20	30	25	59	9	....	.....	13.50	no	.....	Monthly.
..	..	2	18	30	22	59	9	....	.....	12.00	no	.....	Weekly.
..	..	5	..	13	6	60	10	50	Sickness.....	10.50	....	.....	Monthly.
..	..	3	12	18	13	60	10	....	.....	18.00	yes	1.50	Monthly.
2	33	6	12	38	24	44	4	60	Sickness.....	13.50	....	.....	Monthly.
..	..	2	12	5	3	55	15	50	Hard times.....	12.00	no	.....	Monthly
..	..	2	16	28	2	44	4	20	Sickness.....	14.50	....	.....	Monthly.
1	36	4	16	7	1	84	12	92	No work.....	10.50	no	.....	Weekly.
..	..	2	12	10	10	..	....	....	.....	25.00	no	.....	Monthly.
..	..	2	19	11	4	44	4	14	Vacation.....	14.50	....	.....	Monthly.
..	..	..	13	1	1	44	4	100	No work.....	6.50	....	.....	Monthly.
1	36	4	15	10	3	66	11	100	Sickness.....	14.00	no	.....	Monthly.
..	..	2	20	2	1	60	10	....	.....	9.50	....	.....	Monthly.
..	..	2	11	18	3	44	4	50	.....	14.50	no	.....	Monthly.
2	36	5	18	2	2	66	11	....	.....	12.00	no	.....	Weekly.

INDIVIDUAL REPORTS.

RAILROADING.

TABLE 47 (CONCLUDED).—*Showing individual earnings, income from other sources and total income, living expenses, savings account, home conditions, etc.*

Blank number.	Wages withheld.	No. days' pay.	Individual earnings of self during year.	Income from other sources.	Total income.	Living expenses (single).	Living expenses (with family).	Earn more than family expenses.	Wages of wife or children required.	Savings bank account.	Saved earnings.	Own a home.	Estimated value of home.	Home incumbered
5,397	....	..	$900	.....	$900	.....	.....	no	...	no	no	no	.....	....
5,413	yes	6	620	$30	650	.....	$650	no	....	no	no	no	.....	....
5,416	no	..	1,000	600	1,600	.....	.....	yes	....	yes	yes	yes	$4,000	no
5,450	no	..	800	60	860	.....	300	yes	....	yes	yes	no	.....	....
5,581	no	..	748	.....	748	.....	.....	yes	....	no	no	yes	1,400	yes
5,611	no	..	550	.....	550	.....	480	yes	....	no	no	no	.....	....
5,862	no	..	420	150	570	.....	600	no	yes	no	no	no	.....	....
5,911	no	..	500	.....	500	.....	.....	yes	....	....	....	no	.....	....
5,983	no	..	500	.....	500	.....	500	no	....	no	no	yes	2,500	yes
5,988	no	..	1,000	.....	1,000	.....	500	yes	....	yes	no	no	.....	....
6,043	yes	6	600	100	700	.....	500	yes	...	yes	yes	yes	1,000	no
6,163	yes	..	676	.....	676	.....	338	yes	....	yes	yes	no	.....	....
6,552	no	..	593	.....	593	.....	.....	yes	....	yes	yes	no	.....	....
6,701	no	..	429	.....	429	.....	.....	....	....	yes	yes	no	.....	....
6,752	yes	7	700	.....	700	.....	300	yes	....	no	no	no	.....	....
6,753	no	..	930	.....	930	.....	600	yes	....	yes	yes	no	.....	....
6,807	yes	..	600	.....	600	.....	700	yes	....	yes	no	no	.....	....
6,951	no	..	540	10	550	.....	500	yes	no	yes	yes	no	.....	....
6,982	no	..	1,000	.....	1,000	.....	.....	yes	....	yes	yes	no	.....	....
6,994	no	..	420	.....	420	.....	.....	yes	....	no	no	no	.....	....
7,293	no	..	440	.....	440	.....	.....	....	....	yes	yes	yes	1,200	no
7,794	yes	10	580	.....	580	.....	480	yes	....	yes	yes	no	.....	....
7,799	yes	12	549	96	695	.....	.....	no	yes	no	no	no	.....	....
7,969	no	..	600	.....	600	.....	500	no	yes	no	no	no	.....	....
8,207	no	..	626	.....	626	.....	626	no	....	....	....	yes	1,500	no
8,347	yes	12	425	50	475	.....	500	no	yes	no	no	no	.....	....
8,606	no	..	650	.....	650	.....	400	no	....	no	no	no	.....	....
8,954	yes	6	450	350	800	.....	800	no	yes	yes	no	yes	2,500	no
9,008	yes	15	500	.....	500	.....	300	....	....	yes	yes	no	.....	....
9,137	yes	10	700	.....	700	.....	.....	no	....	yes	yes	no	.....	....
9,248	yes	3	480	18	498	.....	480	no	....	no	no	no	.....	....
9,371	no	..	1,200	.....	1,200	.....	1,000	yes	....	yes	yes	no	.....	....
9,398	yes	15	525	.....	525	.....	.....	yes	....	yes	no	no	.....	....
9,461	yes	15	340	.....	340	.....	.....	....	....	yes	yes	no	.....	....
9,466	no	..	704	.....	704	.....	500	yes	yes	yes	no	no	.....	....
9,793	no	..	480	.....	480	.....	480	no	....	no	no	no	.....	....
9,977	yes	12	619	.....	619	.....	.....	no	....	....	....	yes	1,800	yes
10,154	no	..	640	.....	640	.....	635	no	no	no	no	no	.....	....

INDIVIDUAL REPORTS.

RAILROADING.

Showing home conditions, board per week with room, number of fraternal orders connected with, amount yearly dues, weekly benefits, death benefits, trade union, etc.

Ins. against fire.	No. rooms occ'p'd.	Sanitary condition of home.	Occupy tenement.	Monthly rent.	No. rooms occ'p'd.	Sanitary condition of tenement.	Board per week, including room.	Keep account of living expenses.	Take books from public library.	No. fra'l orders.	Am't yearly dues, assessments, etc.	Weekly benefits.	Death benefits payable to family.	Belong to trade union.
....	..	.....	yes	$12.50	..	good	.....	.....	no	2	.....	.....	$2,000	yes
....	..	.....	yes	12.50	5	fair	.....	yes	yes	3	$10.00	$5.00	.....	yes
yes	9	good	no	.....	..	.....	.....	yes	yes	1	.....	.....	.....	....
....	..	.....	yes	27.00	7	good	.....	yes	yes	4	36.00	10.00	2,000	no
yes	7	good	no	.....	..	.....	.....	no	no	1	5.00	5.00	50	no
....	..	.....	yes	12.00	5	good	.....	.....	no	2	14.00	6.00	.....	no
....	..	.....	yes	13.00	6	good	.....	yes	yes	2	15.00	5.00	1,100	no
....	..	.....	no	.....	..	.....	.....	no	no	2	39.00	10.00	1,200	yes
yes	8	good	no	.....	..	.....	.....	yes	yes	1	12.00	12.00	1,000	no
....	..	.....	yes	20.00	8	good	.....	no	no	2	75.00	20.00	7,000	no
yes	..	.....	yes	9.00	4	fair	.....	no	no	2	12.00	5.00	50	no
....	..	.....	no	.....	..	.....	$6.50	no	no	2	23.00	14.00	1,050	no
....	..	.....	yes	10.00	5	good	.....	no	no	1	4.00	4.00	.....	no
....	..	.....	no	.....	..	.....	5.00	yes	yes	..	.....	.....	.....	no
....	..	.....	yes	.....	2	.....	.....	.....	.....	4	65.00	19.00	3,100	yes
. ..	..	.....	yes	16.00	9	good	.....	no	no	3	49.00	17.00	4,000	no
....	..	.....	yes	7.00	6	good	.....	no	no	2	40.00	5.00	1,000	no
....	..	.....	yes	10.00	5	good	.....	yes	no	2	7.00	5.00	50	no
....	..	.....	yes	18.00	7	good	.....	yes	yes	1	14.00	6.00	1,000	no
....	..	.....	yes	.....	5	.....	.....	no	no	1	17.00	.....	2,000	no
yes	6	good	no	.....	..	.....	.....	no	yes	3	10.00	10.00	30	no
....	..	.....	yes	9.00	6	good	.....	yes	yes	..	.....	.....	.....	no
....	..	.....	yes	10.00	5	good	.....	yes	yes	..	.....	.....	.....	no
....	..	.....	.....	.....	..	.....	.....	yes	yes	1	5.00	7.00	1,100	no
yes	7	good	no	.....	..	.....	.....	no	no	1	3.00	.....	.....	no
....	..	.....	yes	8.50	6	fair	.....	yes	yes	2	6.00	2.00	.....	no
....	..	.....	.....	.....	..	.....	.....	yes	yes	3	30.00	2.00	1,000	yes
yes	8	good	no	.....	..	.....	.....	yes	yes	1	20.00	2.00	1,000	no
....	..	.....	yes	10.00	5	.....	.....	no	yes	1	22.00	5.00	150	yes
....	..	.....	yes	10.50	5	good	.....	no	yes	2	8.00	2.00	30	no
....	..	.....	yes	.....	5	fair	.....	no	yes	..	.....	.....	.....	no
....	..	.....	yes	15.00	4	good	.....	yes	yes	..	20.00	20.00	2,000	no
....	..	.....	no	.....	..	.....	.....	no	yes	2	.....	.....	.....	no
....	..	.....	no	.....	..	.....	2.75	no	no	..	.....	.....	.....	no
....	..	.....	no	.....	..	.....	6.00	yes	no	1	5.00	6.00	30	no
....	..	.....	no	.....	..	.....	6.00	no	no	1	.....	.....	.....	no
yes	7	good	no	.....	..	.....	.....	no	yes	..	.....	.....	.....	no
....	..	.....	yes	12.00	8	good	.....	no	yes	2	29.00	11.00	1,000	no

INDIVIDUAL REPORTS.

SALESMEN.

TABLE 48.—*Showing branch of occupation in which engaged, birthplace of person reporting, nationality of father and mother, married or single, etc.*

Blank number.	Branch of occupation.	Birthplace.	Nationality of father.	Nationality of mother.	Mar., single, wid.	Children in family.
272	Travelling.....	Quebec.....	Irish.....	French.....	S.	
1,084	Travelling.....	Maine.....	American.....	American....	M.	1
1,365	Travelling.....	New Hampshire.	American.....	American...	M.	5
2,696	Travelling.....	New Hampshire.	American.....	American....	S.	
3,032	Travelling.....	New Hampshire.	American.....	American....	M.	2
3,723	Travelling.....	Massachusetts..	Irish.....	Irish.....	M.	1
3,820	Travelling.....	France	French	French.....	M.	
5,536	Travelling.....	New Hampshire.	American.....	American....	M.	1
8,274	Managing	Massachusetts..	Irish	Irish	S.	
8,457	Travelling.....	New Hampshire.	American.....	American....	S.	

SASH AND BLIND MAKERS.

TABLE 49.—*Showing branch of occupation, birthplace, etc.*

1,118	Sash maker....	New Hampshire.	American.....	American....	M.	3
1,119	Sash maker....	New Hampshire.	American.....	American....	M.	2
1,148	Finisher.....	New Hampshire.	American.....	American....	M.	5
1,152	Smoother.....	Nova Scotia.....	Canadian.....	Canadian.....	M.	
1,155	Blind maker...	New Hampshire.	American.....	American....	S.	
1,159	Smoother.....	Massachusetts..	American.....	American....	M.	
1,160	Smoother.....	New Hampshire.	American.....	American....	M.	
1,169	Sash maker....	New Hampshire.	American.....	American....	M.	
1,187	Blind maker...	New Hampshire.	American.....	American....	M.	3
1,337	Sash maker....	Maine.....	American.....	American....	M.	
1,358	Blind maker...	Maine.....	American.....	American....	M.	1
1,360	Sash maker....	New Hampshire.	American.....	American....	M.	4
1,368	Blind maker...	New Hampshire.	American.....	American....	M.	
1,858	Blind maker...	Vermont	American.....	American....	M.	
2,126	Door maker....	New Hampshire.	American.....	American....	M.	2
2,473	Sash maker....	Massachusetts..	American.....	American....	M.	
2,650	Smoother.....	Massachusetts..	American.....	American....	W.	
4,301	Sash maker....	New York.....	American.....	English.....	M.	1
7,745	Door maker....	New York.....	American.....	American....	M.	1
7,981	Door maker....	Vermont.....	American.....	American....	M.	2
9,869	Blind maker...	New Hampshire.	American.....	American....	S.	
9,881	Finisher.....	Vermont.....	American.....	American....	M.	

INDIVIDUAL REPORTS.

SALESMEN.

Showing school conditions, age began work, years in occupation, hours employed weekly, number of days unemployed and cause of non-employment, wage conditions, etc.

No. at school.	Weeks at school.	Dependent in fam.	Age began work.	Yrs. in occupation	With employer.	Hours weekly.	Hours Saturday.	Days unemployed during year.	Cause of non-employment.	Wages per week.	Wages decreased.	Weekly reduction.	Wages paid.
..	..	..	16	2	1	86	16	....	.....	$12.00	no	.....	Weekly.
1	36	5	16	21	18	55	5	....	.....	24.00	no	.....	Monthly.
4	34	7	20	25	24	45	..	....	.....	12.00	....	.....	Monthly.
..	..	..	18	6	1	..	..	....	.....	24.00	no	.....	Irregular.
1	36	4	20	8	1	67	12	1	Sickness	12.00	no	.....	Weekly.
..	..	3	13	1	1	59	9	....	.....	12.00	....	.....	Monthly.
..	..	2	15	1	1	59	14	....	.....	15.00	no	.....	Fortnightly.
..	..	3	19	7	3	56	12	....	.....	12.00	no	.....	Weekly.
..	..	..	15	6	1	74	14	....	.....	10.00	no	.....	Weekly.
..	..	..	15	3	3	48	8	24	No work.....	10.00	no	.....	Weekly.

SASH AND BLIND MAKERS.

Showing school conditions, age began work, etc.

3	35	6	8	25	25	45	..	....	.....	$7.50	no	.....	Monthly.
1	31	4	16	8	8	59	9	....	.....	10.00	no	.....	Monthly.
5	32	7	13	25	18	59	9	56	Sickness and no work....	15.00	yes	$1.00	Monthly.
..	..	2	15	16	10	59	9	100	No work.....	12.00	yes	1.50	Monthly.
..	..	..	16	12	8	59	9	....	.....	8.50	no	.....	Monthly.
..	..	2	15	10	1	59	9	60	Vacation.....	10.00	yes	1.00	Weekly.
..	..	2	21	30	17	59	9	10	.....	12.00	yes	.25	Monthly.
..	..	2	21	12	12	69	9	....	.....	12.00	no	.....	Monthly.
2	..	5	18	20	6	60	10	30	Vacation.....	15.00	no	.....	Weekly.
..	..	2	17	38	27	59	9	150	.....	15.00	no	.....	Monthly.
1	30	3	12	12	12	59	9	10	No work.....	9.50	yes	.70	Monthly.
2	22	6	9	5	5	59	9	....	.....	9.50	no	.....	Monthly.
..	..	2	..	8	2	59	9	....	.....	9.00	no	.....	Monthly.
..	..	2	18	6	5	60	10	....	.....	7.50	no	.....	Monthly.
..	..	4	15	25	7	59	9	12	.....	12.00	no	.....	Weekly.
..	..	2	..	14	6	60	9	....	Sickness.....	13.50	no	.....	Weekly.
..	..	..	16	30	17	55	5	80	No work.....	10.00	no	.....	Weekly.
..	..	3	17	2	1	60	5	....	.....	7.50	no	.....	Weekly.
..	..	3	19	3	2	60	10	64	Shutdown.....	9.00	yes	1.00	Monthly.
1	..	4	12	9	9	60	10	90	No work.....	8.50	yes	.75	Monthly.
..	..	..	17	13	13	60	10	29	.....	6.50	yes	.50	Monthly.
..	..	4	12	3	3	60	10	....	.....	9.00	yes	.50	Monthly.

INDIVIDUAL REPORTS.

SALESMEN.

TABLE 48 (CONCLUDED).—*Showing individual earnings, income from other sources and total income, living expenses, savings account, home conditions, etc.*

Blank number.	Wages withheld.	No. days' pay.	Individual earnings of self during year.	Income from other sources.	Total income.	Living expenses (single).	Living expenses (with family).	Earn more than family expenses.	Wages of life or children required.	Savings bank account.	Saved earnings.	Own a home.	Estimated value of home.	Home incumbered
272	no	..	$600	.....	$600	$450	.....	yes	....	yes	yes	no	.....	....
1,084	no	..	1,200	$100	1,300	.....	.....	yes	....	yes	yes	no	.....	....
1,365	no	..	550	300	850	.....	.....	yes	no	yes	yes	yes	$1,500	no
2,696	....	..	1,020	.....	1,020	800	.....	....	....	yes	yes	no	.....	....
3,032	no	..	600	.....	600	.....	$600	no	no	yes	no	no	.....	....
3,723	no	..	676	.....	676	.....	.....	yes	....	no	no	no	.....	....
3,820	no	..	800	200	1,000	.....	400	yes	....	yes	yes	no	.....	....
5,536	no	..	600	100	700	.....	.....	....	....	no	yes	yes	3,500	no
8,274	no	..	520	.....	520	420	.....	yes	....	yes	yes	no	.....	....
8,457	no	..	500	.....	500	350	....	yes	....	yes	no	no	.....	....

SASH AND BLIND MAKERS.

TABLE 49 (CONCLUDED).—*Showing individual earnings, income, etc.*

1,118	yes	7	$350	$25	$375	.....	$375	no	yes	no	no	no	.....	....
1,119	no	..	500	.....	500	.....	500	no	no	no	no	no	.....	....
1,148	no	..	625	96	721	.....	806	no	....	no	no	no	.....	....
1,152	no	..	400	.....	.....	.....	350	yes	....	no	yes	yes	$2,000	yes
1,155	no	..	420	.....	420	.....	.....	yes	....	yes	yes	no	.....	....
1,159	no	..	425	75	500	.....	.....	....	....	yes	yes	....	.....	....
1,160	no	..	448	.....	448	.....	300	yes	....	yes	yes	yes	3,000	no
1,169	no	..	600	.....	600	.....	.....	yes	....	yes	yes	no	.....	....
1,187	no	..	500	250	750	.....	400	yes	....	no	yes	yes	2,000	no
1,337	no	..	300	.....	300	.....	300	no	....	no	no	yes	.....	no
1,358	no	..	384	36	420	.....	.....	yes	no	yes	yes	yes	1,200	no
1,360	no	..	450	36	486	.....	.....	yes	....	no	yes	yes	1,500	no
1,368	no	..	450	.....	450	.....	450	no	....	....	....	yes	1,500	no
1,858	yes	10	400	30	430	.....	.....	yes	....	yes	yes	no	.....	...
2,126	no	..	600	.....	600	.....	600	no	....	no	no	yes	2,000	no
2,473	yes	6	650	650	1,300	.....	600	yes	...	yes	yes	yes	5,000	no
2,650	yes	6	400	.....	400	.....	.....	....	....	no	no	no	.....	....
4,301	no	..	375	.....	375	.....	208	yes	....	no	yes	no	.....	....
7,745	yes	15	367	.....	367	.....	300	yes	....	yes	yes	no	.....	....
7,981	yes	15	294	.....	294	.....	.....	no	....	yes	no	no	.....	....
9,869	yes	15	329	.....	329	$200	.....	yes	...	yes	yes	no	.....	....
9,881	yes	15	450	50	500	.....	525	no	....	no	no	no	.....	....

INDIVIDUAL REPORTS.

SALESMEN.

Showing home conditions, board per week with room, number of fraternal orders connected with, amount yearly dues, weekly benefits, death benefits, trade union, etc.

Ins. against fire.	No. rooms occ'p'd.	Sanitary condition of home.	Occupy tenement.	Monthly rent.	No. rooms occ'p'd.	Sanitary condition of tenement	Board per week, including room.	Keep account of living expenses.	Take books from public library.	No. fra'l orders.	Am't yearly dues, assessments, etc	Weekly benefits.	Death benefits payable to family.	Belong to trade union.
....	..	.....	no	.....	..	.....	$5.50	no	no	1	$15.00	$5.00	$100	no
....	..	.....	yes	.....	9	good	.....	yes	yes	1	.....	.....	1,000	no
yes	8	good	no	.....	..	.....	.....	no	yes	2	10.00	10.00	80	no
....	..	.....	no	.....	..	.....	7.00	yes	yes	3	50.00	28.00	1,000	no
....	..	.....	yes	$14.00	7	good	.....	yes	no	1	5.00	5.00	1,000	no
....	..	.....	yes	10.00	6	good	.....	yes	yes	2	14.00	.....	2,000	yes
....	..	.....	no	.....	..	.....	6.00	yes	no	3	55.00	10.00	600	no
yes	7	good	no	.....	..	.....	.....	no	no	..	.....	.....	.....	no
....	..	.....	yes	6	5	good	.....	no	no	1	6.00	5.00	50	no
....	..	.....	no	.....	..	.....	5.00	no	yes	..	.....	.....	.....	no

SASH AND BLIND MAKERS.

Showing home conditions, fraternal statistics, etc.

....	..	.....	yes	$8.00	6	good	.....	no	yes	2	$18.00	$5.00	$2,000	yes
....	..	.....	yes	6.50	5	good	.....	no	yes	2	16.00	5.00	2,000	no
....	..	.....	yes	10.50	10	good	.....	no	yes	3	13.00	8.00	80	no
yes	6	good	no	.....	..	.....	.....	yes	yes	3	22.00	5.00	1,000	no
....	..	.....	no	.....	..	.....	$3.00	no	yes	3	13.00	10.00	1,000	no
....	..	.....	.....	.....	..	.....	.....	no	yes	2	8.00	4.00	2,100	no
yes	9	good	no	.....	..	.....	.....	no	no	2	33.00	.....	2,000	no
....	..	.....	no	.....	..	.....	.....	no	yes	3	9.00	5.00	2,000	no
yes	11	good	no	.....	..	.....	.....	no	yes	3	7.00	5.00	2,000	no
yes	9	good	no	.....	..	.....	.....	no	no	2	3.00	.....	.....	no
yes	6	good	no	.....	..	.....	.....	no	no	3	25.00	11.00	3,000	no
yes	7	good	no	.....	..	.....	.....	no	yes	1	7.00	5.00	2,050	no
yes	8	good	no	.....	..	.....	.....	no	no	2	15.00	8.00	1,000	no
....	..	.....	no	.....	..	.....	3.50	no	yes	..	.....	.....	.....	no
yes	9	good	no	.....	..	.....	.....	no	yes	2	21.00	3.00	2,000	no
yes	10	fair	no	.....	..	.....	.....	yes	no	1	45.00	25.00	1,000	no
....	..	.....	no	.....	..	.....	4.00	no	no	..	.....	.....	2,000	no
....	..	.....	no	.....	..	.....	4.00	no	no	..	.....	.....	.....	no
....	..	.....	yes	7.00	4	bad	.....	yes	yes	1	2.00	.....	.....	no
....	..	.....	yes	10.00	7	good	.....	yes	no	1	20.00	.....	2,000	no
....	..	.....	no	.....	..	.....	2.50	no	no	..	.....	.....	.....	no
....	..	.....	yes	8.00	4	poor	.....	no	yes	1	16.00	.....	1,000	no

INDIVIDUAL REPORTS.

SHOE WORKERS.

TABLE 50.—*Showing branch of occupation in which engaged, birthplace of person reporting, nationality of father and mother, married or single, etc.*

Blank number.	Branch of occupation.	Birthplace.	Nationality of father.	Nationality of mother.	Mar., single, wid.	Children in family.
52	Burnisher	Sweden	Swede	Swede	M.	
656	Sorter	New Hampshire.	American	American	M.	
694	Laster	New Hampshire.	American	American	M.	
709	Cutter	Vermont	American	American	M.	
745	Stock fitter	New Hampshire.	Swiss	American	S.	
987	Cutter	New Hampshire.	American	American	M.	1
1,052	Cutter	New Hampshire.	American	American	S.	
1,408	Cobbler	New Hampshire.	American	American	M.	
1,594	Cutter	New Hampshire.	American	American	S.	
1,709	Journeyman	Maine	American	American	M.	
1,718	Foreman	New Hampshire.	American	American	M.	2
1,748	Cutter	Massachusetts	American	American	S.	
1,749	Finisher	New Hampshire.	Irish	Irish	M.	
2,007	Laborer	New York	American	American	S.	
2,013	Laster	New Hampshire.	American	American	M.	1
2,063	Cutter	New Hampshire.	American	American	M.	1
2,074	Heel cutter	New Hampshire.	American	American	M.	1
2,097	Packer	New Hampshire.	American	American	S.	
2,419	Sorter	Wisconsin	American	American	M.	2
2,491	Cutter	Massachusetts	American	American	M.	
2,493	Sorter	New Hampshire.	American	American	S.	
2,561	Beater out	New Hampshire.	American	American	M.	1
2,568	Laster	New Hampshire.	American	American	M.	1
2,598	Cutter	New Hampshire.	American	American	M.	
2,842	Cobbler	Canada	Canadian	Canadian	S.	
3,046	Edge setter	New Brunswick.	Canadian	Canadian	S.	
3,212	Cutter	Vermont	Canadian	American	M.	2
3,217	Laster	Maine	American	American	M.	4
3,253	Cutter	New Hampshire.	Irish	Irish	S.	
3,336	Laster	Illinois	American	American	M.	1
3,815	Cutter	New Hampshire.	American	American	M.	
3,979	Cutter	Massachusetts	American	English	M.	1
4,083	Sorter	New Hampshire.	American	American	S.	
4,104	Sorter	New Hampshire.	American	American	M.	1
4,138	Foreman	New Hampshire.	English	English	S.	

INDIVIDUAL REPORTS.

SHOE WORKERS.

Showing school conditions, age began work, years in occupation, hours employed weekly, number of days unemployed and cause of non-employment, wage conditions, etc.

No. at school.	Weeks at school.	Dependent in fam.	Age began work.	Yrs. in occupation.	With employer.	Hours weekly.	Hours Saturday.	Days unemployed during year.	Cause of non-employment.	Wages per week.	Wages decreased.	Weekly reduction.	Wages paid.
..	..	2	..	18	3	59	9	100	No work	$10.00	yes	$2.00	Weekly.
..	..	2	19	8	2	60	10	50	No work	.....	....	.....	Weekly.
..	..	2	18	5	1	59	9	60	No work	14.00	yes	.....	Weekly.
..	..	2	25	9	9	53	9	150	No work	12.00	yes	2.00	Weekly.
..	..	..	15	4	4	59	9	150	No work	15.00	no	.....	Weekly.
1	36	3	16	22	6	60	10	61	No work	15.00	no	.....	Weekly.
..	..	..	..	10	1	59	6	....	.....	.....	yes	.....	Weekly.
..	..	..	10	40	40	65	15	....	.....	12.00	yes	.....	Irregularly.
..	..	..	16	3	1	60	10	120	No work	13.50	no	.....	Weekly.
..	..	3	15	..	45	..	..	75	Sickness	9.00	no	.....	
2	36	4	16	25	12	60	10	....	.....	18.00	no	.....	Weekly.
..	..	..	14	7	4	60	10	60	No work	13.50	no	.....	Weekly.
..	..	6	13	15	15	60	10	30	No work	10.50	no	.....	Weekly.
..	..	..	17	2	2	60	10	18	Sickness	7.00	no	.....	Weekly.
..	..	3	16	11	3	57	7	75	No work	13.00	no	.....	Fortnightly.
..	..	3	17	35	2	59	9	100	No work	13.50	no	.....	Fortnightly.
..	..	3	15	15	4	59	9	....	.....	10.00	no	.....	Weekly.
..	..	..	18	6	2	59	9	50	Shutdown	11.00	yes	1.25	Weekly.
1	36	4	13	18	14	60	10	55	No work	15.00	no	.....	Weekly.
..	..	..	..	20	..	60	10	....	.....	12.00	no	.....	Weekly.
..	..	..	16	9	9	60	10	62	No work	15.00	no	.....	Weekly.
..	..	3	14	10	2	58	8	100	No work	13.50	no	.....	Weekly.
1	36	4	12	10	1	60	10	....	.....	10.00	....	.....	Weekly.
..	..	2	14	7	1	60	10	100	No work	12.00	no	.....	Weekly.
..	..	..	14	13	7	60	10	6	Vacation	12.00	yes	5.00	Irregularly.
..	..	..	16	3	2	60	10	75	No work	10.50	yes	2.00	Weekly.
..	..	4	16	5	5	50	..	50	No work	10.50	no	.....	Weekly.
3	33	6	18	7	4	60	10	35	Sickness	11.00	yes	2.00	Weekly.
..	..	..	11	7	7	60	10	75	No work	12.00	no	.....	Weekly.
1	36	4	15	12	7	59	9	....	.....	9.00	no	.....	Weekly.
..	..	2	11	25	3	60	10	60	No work	15.00	no	.....	Weekly.
..	..	3	16	15	5	60	10	60	No work	11.00	no	.....	Weekly.
..	..	..	14	4	4	60	10	60	No work	13.50	no	.....	Weekly.
1	36	3	18	7	7	60	10	60	No work	12.00	no	.....	Weekly.
..	..	..	20	12	12	78	13	....	.....	.....	no	.....	Monthly.

INDIVIDUAL REPORTS.

SHOE WORKERS.

TABLE 50 (CONCLUDED).—*Showing individual earnings, income from other sources and total income, living expenses, savings account, home conditions, etc.*

Blank number.	Wages withheld.	No. days' pay.	Individual earnings of self during year.	Income from other sources.	Total income.	Living expenses (single).	Living expenses (with family).	Earn more than family expenses.	Wages of wife or children required.	Savings-bank account.	Saved earnings.	Own a home.	Estimated value of home.	Home incumbered
52	no	..	$400	.....	$400	.....	$400	yes	....	.....	....	no	.....	....
656	yes	3	.....	.....	.....	.....	.....	....	no	.....	....	no	.....	....
694	yes	6	445	$218	663	.....	.....	yes	no	yes	yes	no	.....	....
709	yes	6	375	150	425	.....	428	no	....	no	no	no	.....	....
745	yes	6	170	.....	170	$204	.....	no	....	yes	no	no	.....	....
937	yes	4	630	.....	630	.....	650	no	....	no	no	no	.....	....
1,032	yes	2	.....	.....	.....	208	.....	.....	.....	.....	....	no	.....	....
1,408	no	..	790	10	800	300	.....	yes	....	yes	no	no	.....	....
1,594	no	..	400	.....	400	234	.....	.....	.....	.....	....	no	.....	....
1,709	....	..	.....	.....	500	.....	500	no	....	no	no	no	.....	....
1,718	yes	6	936	50	986	.....	700	yes	....	yes	yes	yes	$2,400	yes
1,748	yes	3	500	.....	500	400	.....	yes	....	no	yes	no	.....	....
1,749	yes	6	486	.....	486	.....	486	no	yes	no	no	no	.....	....
2,007	....	..	.....	.....	.....	.....	.....	.....	.....	.....	....	no	.....	...
2,013	yes	3	500	.....	500	.....	450	yes	....	yes	yes	no	.....	....
2,063	no	..	300	100	400	.....	400	no	....	yes	no	yes	1,750	no
2,074	no	..	520	.....	520	.....	.....	yes	....	no	no	no	.....	....
2,097	yes	2	475	.....	475	300	.....	yes	....	no	yes	no	.....	....
2,419	yes	4	645	.....	645	.....	.....	yes	....	yes	no	yes	2,000	yes
2,491	no	..	480	.....	480	.....	480	no	....	.....	....	no	.....	....
2,493	yes	6	633	.....	633	.....	.....	.....	....	no	no	no	.....	....
2,561	....	..	450	100	550	.....	500	no	yes	no	no	no	.....	....
2,568	yes	6	.....	100	.....	.....	.....	.....	....	.....	....	no	.....	....
2,598	yes	6	416	.....	416	.....	500	no	....	no	no	no	.....	....
2,842	no	..	600	.....	600	400	.....	yes	....	no	no	no	.....	....
3,046	yes	3	394	.....	394	260	.....	yes	....	no	no	no	.....	....
3,212	yes	3	360	200	560	.....	560	no	....	no	no	no	.....	....
3,217	yes	6	514	60	574	.....	574	no	yes	no	no	no	.....	....
3,253	yes	4	490	.....	490	200	.....	yes	....	yes	yes	no	.....	....
3,336	yes	3	.....	.....	.....	.....	.....	no	no	yes	no	no	.....	....
3,815	yes	4	650	572	1,222	.....	450	yes	....	yes	yes	no	.....	....
3,997	yes	3	550	.....	550	.....	380	yes	....	yes	yes	no	.....	....
4,083	yes	3	566	.....	566	375	.....	yes	....	no	yes	no	.....	....
4,104	yes	4	492	.....	492	.....	.....	yes	....	no	yes	yes	2,000	yes
4,138	no	..	840	624	1,464	.....	1,200	no	....	no	no	yes	6,000	no

INDIVIDUAL REPORTS.

SHOE WORKERS.

Showing home conditions, board per week with room, number of fraternal orders connected with, amount yearly dues, weekly benefits, death benefits, trade union, etc.

Ins. against fire.	No. rooms occ'p'd.	Sanitary condition of home.	Occupy tenement.	Monthly rent.	No. rooms occ'p'd.	Sanitary condition of tenement.	Board per week, including room.	Keep account of living expenses.	Take books from public library.	No. frat'l orders.	Amt yearly dues, assessments, etc.	Weekly benefits.	Death benefits payable to family.	Belong to trade union.
....	..	.....	yes	$10.00	5	good	.....	...	.....	..	.....	.....	.....	yes
....	..	.....	yes	10.00	4	good	.....	no	yes	..	.....	.....	.....	no
....	..	.....	no	.....	..	.....	$8.00	no	no	1	$4.00	$4.00	50	no
....	..	.....	no	.....	..	.....	.....	yes	yes	..	.....	.....	.....	no
....	..	.....	no	.....	..	.....	3.50	yes	no	..	.....	.....	.....	no
....	..	.....	yes	15.00	6	good	.....	no	yes	..	.....	.....	.....	no
....	..	.....	no	.....	..	.....	4.00	no	yes	..	.....	.....	.....	no
....	..	.....	yes	6.00	..	.....	5.00	yes	no	4	10.00	2.00	.....	no
....	..	.....	no	.....	..	.....	4.50	no	yes	..	.....	.....	.....	yes
....	..	.....	yes	17.00	8	good	.....	yes	yes	3	25.00	.....	.....	no
yes	8	good	no	.....	..	.....	.....	no	yes	6	31.00	6.00	4,000	no
....	..	.....	no	.....	..	.....	5.50	no	yes	2	10.00	2.00	.....	no
....	..	.....	yes	20.00	6	good	.....	no	no	3	60.00	34.00	1,125	no
....	..	.....	no	.....	..	.....	.....	no	no	..	.....	.....	.....	no
....	..	.....	yes	14.00	6	good	.....	no	no	..	.....	.....	.....	no
yes	8	good	no	.....	..	.....	.....	no	yes	3	6.00	.....	.....	yes
....	..	.....	yes	9.50	8	good	.....	no	no	2	25.00	5.00	2,100	no
....	..	.....	no	.....	..	.....	3.50	no	yes	2	8.00	4.00	30	no
yes	8	good	no	.....	..	.....	.....	no	no	2	8.00	6.00	60	no
....	..	.....	yes	8.00	4	good	.....	.....	.....	..	.....	.....	.....	no
....	..	.....	no	.....	..	.....	4.00	no	no	2	11.00	8.00	75	no
....	..	.....	yes	12.00	9	good	.....	yes	no	..	.....	.....	.....	yes
....	..	.....	yes	8.00	6	good	.....	no	yes	..	.....	.....	.....	yes
....	..	.....	.....	.....	..	.....	.....	yes	yes	..	.....	....	.....	no
....	..	.....	no	.....	..	.....	4.00	no	no	1	6.00	6.00	225	no
....	..	.....	no	.....	..	.....	4.25	no	no	1	6.00	4.00	50	no
....	..	.....	yes	13.00	7	good	.....	yes	no	..	.....	.....	.....	no
....	..	.....	yes	7.00	6	good	.....	no	no	1	6.00	3.00	40	no
....	..	.....	no	.....	..	.....	3.00	no	yes	2	18.00	5.00	100	no
....	..	.....	yes	4.00	4	good	.....	no	no	2	25.00	5.00	2,000	yes
....	..	.....	no	.....	..	.....	6.75	no	no	3	11.00	7.00	25	no
....	..	.....	yes	8.00	5	good	.....	yes	no	2	17.00	5.00	650	no
....	..	.....	no	.....	..	.....	6.00	yes	yes	1	2.00	.....	.....	no
yes	7	good	no	.....	..	.....	.....	yes	no	2	22.00	4.00	50	no
yes	..	good	no	.....	..	.....	4.50	no	no	5	73.00	66.00	17,000	no

INDIVIDUAL REPORTS.

SHOE WORKERS.

TABLE 50 (CONTINUED).—*Showing branch of occupation in which engaged, birthplace of person reporting, nationality of father and mother, married or single, etc.*

Blank number.	Branch of occupation.	Birthplace.	Nationality of father.	Nationality of mother.	Mar., single, wid.	Children in family.
4,173	Cutter	New York	American	American	S.	
4,200	Cutter	New Hampshire.	Irish	Irish	S.	
4,233	Treer	New Hampshire.	Irish	Irish	M.	
4,249	Finisher	Massachusetts	Irish	Irish	S.	
4,265	Cutter	New Hampshire.	American	American	M.	1
4,269	Edge trimmer.	New Hampshire.	American	American	M.	2
4,279	Buffer	New Hampshire.	American	American	M.	2
4,296	Cutter	New Hampshire.	Irish	Irish	S.	
4,330	Laster	Canada	Canadian	Canadian	M.	6
4,352	Heel fitter	New Hampshire.	American	American	M.	
4,368	Hand laster	New Hampshire.	American	American	M.	
4,539	Cutter	Massachusetts	American	American	M.	
4,673	Crimper	Massachusetts	American	American	M.	2
4,848	Cutter	Maine	Irish	Irish	S.	
4,960	Cutter	New Jersey	Scotch	American	S.	
5,000	Laster	Massachusetts	American	American	M.	1
5,202	Cutter	New Hampshire.	American	American	M.	1
5,215	Leveller	New Hampshire.	American	American	M.	
5,823	Heel cutter	Maine	Canadian	Canadian	M.	
6,085	Laster	New Hampshire.	Irish	Irish	M.	1
6,282	Cutter	Canada	Canadian	Canadian	S.	
6,677	Cutter	Iowa	American	American	M.	1
6,822	Laster	New Hampshire.	American	American	M.	2
6,871	McKay operat.	New Hampshire.	American	American	M.	
6,882	Cutter	New Brunswick.	Nova Scotia	Nova Scotia.	S.	
6,991	Tacker	New Hampshire.	American	American	M.	2
7,009	Laster	Maine	American	American	M.	
7,214	Laborer	Maine	American	American	M.	
7,226	Stock fitter	New Hampshire.	American	American	W.	
7,296	Scourer	New Hampshire.	American	American	M.	1
7,344	Buffer	New Hampshire.	Irish	Irish	M.	4
7,437	Stock fitter	New Hampshire.	American	American	M.	2
7,543	Custom work	Massachusetts	American	American	S.	1
7,729	Shoe worker	New Hampshire.	American	American	M.	3
7,787	Edge trimmer.	Massachusetts	American	American	M.	1

INDIVIDUAL REPORTS.

SHOE WORKERS.

Showing school conditions, age began work, years in occupation, hours employed weekly, number of days unemployed and cause of non-employment, wage conditions, etc.

No. at school.	Weeks at school.	Dependent in fam.	Age began work.	Yrs. in occupation	With employer.	Hours weekly.	Hours Saturday.	Days unemployed during year.	Cause of non-employment.	Wages per week.	Wages decreased.	Weekly reduction.	Wages paid.
..	..	..	15	2	2	60	10	120	No work	$9.00	no	.....	Weekly.
..	..	..	10	1	1	59	9	104	No work	9.00	no	.....	Weekly.
..	..	2	14	3	1	56	8	120	Sickness	8.00	no	.....	Weekly.
..	..	..	15	6	2	59	9	150	No work	13.50	no	.....	Weekly.
..	..	3	17	7	1	59	9	....	.....	13.50	no	.....	
2	30	4	10	15	3	55	5	150	No work	9.00	....	.....	Weekly.
..	..	6	15	9	6	60	10	78	.....	14.00	no	.....	Weekly.
..	..	2	14	4	2	59	9	208	No work	12.00	no	.....	Weekly.
2	42	8	18	16	4	58	8	35	No work	10.00	yes	$2.00	Weekly.
..	..	3	14	38	3	59	9	95	Shutdown	7.50	no	.....	Weekly.
..	..	2	17	43	1	..	..	60	No work	5.00	no	.....	Monthly.
..	..	3	16	3	3	59	9	70	Hard times	20.00	yes	1.50	Weekly.
..	..	4	16	3	3	60	10	54	Hard times	9.00	no	.....	Weekly.
..	..	3	16	4	4	60	10	104	No work	17.00	no	.....	Weekly.
..	..	..	15	10	2	60	10	...	.....	12.50	no	.....	Weekly.
1	36	3	18	12	7	54	9	90	Shutdown	8.00	yes	4.00	Weekly.
1	..	3	11	7	2	59	9	12	Sickness	12.00	yes	1.00	Weekly.
..	..	3	15	5	5	60	10	....	.....	15.00	no	.....	Weekly.
..	..	2	9	1	1	59	9	120	No work	9.00	no	.....	Weekly.
..	..	3	12	2	2	58	8	100	Sickness and no work	9.00	yes	1.00	Weekly.
..	..	..	10	3	3	59	9	....	.....	13.50	no	.....	Weekly.
..	..	3	15	16	7	60	10	80	No work and sickness	15.00	no	.....	Weekly.
..	..	4	14	6	2	59	9	45	Sickness and lockout	12.00	yes	1.00	Weekly.
..	..	2	15	3	3	45	5	50	.....	10.00	yes	.75	Weekly.
..	..	..	15	6	6	59	9	....	.....	13.50	no	.....	Weekly.
2	36	7	18	9	3	58	8	....	.....	12.00	yes	1.75	Weekly.
..	..	2	14	4	4	59	9	90	.....	11.00	yes	2.00	Weekly.
..	..	2	18	16	12	59	9	....	.....	.....	yes	3.00	Weekly.
..	..	..	16	15	3	59	9	40	Vacation and no work	11.00	no	.....	Weekly.
..	..	3	15	10	3	59	9	56	Repairs and shutdown	9 00	yes	1.50	Weekly.
3	36	6	10	5	2	47	7	30	Repairs	9.00	yes	6.00	Weekly.
..	..	4	13	12	7	59	9	225	No work	11.00	yes	1.00	Weekly.
..	..	2	8	40	4	..	..	....	.....	9.00	no	.....	Irregularly.
1	26	5	18	2	2	59	9	....	.....	12.00	no	.....	Weekly.
1	..	3	15	11	2	59	9	141	No work	14.00	yes	.75	Weekly.

INDIVIDUAL REPORTS.

SHOE WORKERS.

TABLE 50 (CONCLUDED).—*Showing individual earnings, income from other sources and total income, living expenses, savings account, home conditions, etc.*

Blank number.	Wages withheld.	No. days' pay.	Individual earnings of self during year.	Income from other sources.	Total income.	Living expenses (single).	Living expenses (with family).	Earn more than family expenses.	Wages of wife or children required.	Savings-bank account.	Saved earnings.	Own a home.	Estimated value of home.	Home incumbered
4,173	yes	3	$270	.....	$270	$270	.....	no	....	no	no	no	.....	....
4,200	no	..	288	$242	530	.....	.....	no	....	no	no	no	.....	....
4,233	no	..	240	313	553	.....	.....	no	....	no	no	no	.....	....
4,249	yes	2	350	293	643	.....	.....	yes	....	yes	yes	yes	$3,000	no
4,265	....	..	314	50	364	.....	$364	no	....	yes	no	no	.....	....
4,269	no	..	235	.....	235	.....	235	....	....	yes	yes	no	.....	....
4,279	....	..	500	.....	500	.....	500	no	....	no	no	yes	1,000	yes
4,296	no	..	208	.....	208	208	.....	no	....	no	no	no	.....	....
4,330	.....	..	460	.....	460	.....	416	yes	....	no	no	yes	1,800	yes
4,352	no	..	288	175	463	.....	463	no	yes	no	no	no	.....	....
4,368	yes	18	200	200	400	.....	400	no	yes	no	no	no	.....	....
4,539	no	..	753	.....	753	.....	700	yes	no	yes	yes	no	.....	....
4,673	yes	3	387	.....	387	.....	387	no	....	yes	yes	no	.....	....
4,848	no	..	565	.....	565	565	.....	.....	....	no	no	no	.....	....
4,960	yes	3	.....	.....	.....	.....	.....	no	....	no	no	no	.....	....
5,000	yes	6	312	.....	312	.....	312	no	no	no	no	no	.....	....
5,202	no	..	600	.....	600	.....	600	no	....	no	no	no	.....	....
5,215	no	..	800	.....	800	.....	800	no	....	no	no	yes	3,000	no
5,823	no	..	300	60	360	.....	450	no	....	no	no	no	.....	...
6,085	yes	2	300	.....	300	.....	300	no	....	no	no	no	.....	....
6,282	yes	2	675	.....	675	650	.....	yes	....	.....	.....	.....	.....	....
6,677	yes	3	575	.....	575	.....	575	no	no	no	no	no	.....	....
6,822	yes	2	575	.....	575	.....	350	yes	no	no	yes	no	.....	....
6,871	no	..	330	.....	330	.....	330	no	no	no	no	no	.....	....
6,892	yes	2	375	.....	375	375	.....	no	....	no	no	no	.....	....
6,991	yes	2	575	200	775	.....	750	no	....	no	yes	no	.....	....
7,009	yes	6	360	.....	360	.....	350	no	....	no	no	no	.....	....
7,214	....	..	.....	.....	.....	.....	.....	....	no	....	....	yes	1,500	no
7,226	no	..	462	.....	462	347	.....	yes	....	yes	yes	no	.....	....
7,296	yes	6	396	.....	396	.....	396	no	....	no	no	no	.....	....
7,344	no	..	423	.....	423	.....	523	no	....	yes	no	yes	700	yes
7,437	no	..	143	.....	143	.....	.....	no	....	no	no	no	.....	....
7,543	....	..	.....	.....	.....	.....	.....	.....	.....	.....	.....	no	.....	....
7,729	....	..	400	.....	400	.....	.....	.....	....	no	no	no	.....	....
7,787	yes	3	720	208	928	.....	600	yes	....	yes	yes	no	.....	....

INDIVIDUAL REPORTS.

SHOE WORKERS.

Showing home conditions, board per week with room, number of fraternal orders connected with, amount yearly dues, weekly benefits, death benefits, trade union, etc.

Ins. against fire.	No. rooms occ'p'd.	Sanitary condition of home.	Occupy tenement.	Monthly rent.	No. rooms occ'p'd.	Sanitary condition of tenement.	Board per week, including room.	Keep account of living expenses.	Take books from public library.	No. fra't'l orders.	Am't yearly dues, assessments, etc.	Weekly benefits.	Death benefits payable to family.	Belong to trade union.
....	..	.....	no	.....	..	.....	$4.50	yes	.....	2	$8.00	$5.00	$50	no
....	..	.....	yes	$8.00	6	fair	.....	yes	no	..	.....	.....	.....	yes
....	..	.....	.....	.....	..	.....	.....	no	yes	..	.....	.....	.....	no
yes	8	good	no	.....	..	.....	.....	no	yes	3	15.00	11.00	1,100	yes
....	..	.....	yes	8.00	5	good	.....	yes	yes	2	10.00	10.00	1,250	yes
....	..	.....	yes	15.00	6	good	.....	no	yes	1	9.00	3.00	40	yes
yes	7	good	no	.....	..	.....	.....	no	yes	..	.....	.....	.....	no
....	..	.....	yes	8.00	5	good	.....	no	yes	..	.....	.....	.....	yes
yes	6	good	no	.....	..	.....	.....	.....	.....	..	.....	.....	.....	no
....	..	.....	yes	11.00	8	good	.....	no	yes	1	2.00	3.00	50	no
....	..	.....	yes	11.00	6	good	.....	no	no	..	.....	.....	.....	yes
....	..	.....	yes	12.00	5	good	.....	no	yes	..	.....	.....	5,000	no
....	..	.....	yes	10.00	6	good	.....	.....	.....	1	18.00	.....	.....	no
....	..	.....	no	.....	..	.....	.....	no	yes	..	.....	.....	.....	yes
....	..	.....	no	.....	..	.....	4.00	no	no	1	6.00	5.00	100	no
....	..	.....	yes	8.00	4	fair	.....	no	yes	1	5.00	5.00	50	no
....	..	.....	yes	10.00	7	good	.....	yes	yes	..	.....	.....	.....	no
yes	5	good	no	.....	..	.....	.....	yes	no	2	35.00	.....	4,000	no
....	..	.....	yes	15.00	5	fair	.....	no	no	..	.....	.....	.....	no
....	..	.....	yes	9.00	3	fair	.....	.....	.....	..	.....	.....	.....	yes
....	..	.....	.....	.....	..	.....	.....	yes	yes	2	9.00	5.00	.....	yes
....	..	.....	yes	13.00	7	good	.....	no	no	4	26.00	7.00	2,075	no
....	..	.....	yes	8.00	4	fair	.....	no	no	..	.....	.....	.....	yes
....	..	.....	yes	15.00	6	good	.....	no	yes	1	43.00	30.00	1,000	no
....	..	.....	no	.....	..	.....	4.50	no	yes	..	.....	.....	.....	yes
....	..	.....	yes	15.00	6	.....	.....	no	no	1	8.00	7.00	.....	yes
....	..	.....	yes	11.00	5	good	.....	yes	no	1	6.00	5.00	.....	no
yes	7	good	no	.....	..	.....	.....	no	yes	..	.....	.....	.....	no
....	..	.....	no	.....	..	.....	5.50	.....	.....	..	.....	.....	.....	
....	..	.....	yes	12.00	5	good	.....	.....	yes	2	5.00	7.00	.....	no
yes	6	fair	no	.....	..	.....	.....	yes	yes	..	.....	.....	1,000	no
....	..	.....	yes	12.00	7	fair	.....	yes	no	1	5.00	5.00	100	no
....	..	.....	yes	2.00	..	good	2.00	no	yes	2	38.00	6.00	1,000	no
....	..	.....	yes	6.00	6	good	.....	no	no	..	.....	.....	.....	no
....	..	.....	yes	14.00	7	good	.....	no	yes	2	7.00	5.00	50	no

INDIVIDUAL REPORTS.

SHOE WORKERS.

TABLE 50 (CONTINUED).—*Showing branch of occupation in which engaged, birthplace of person reporting, nationality of father and mother, married or single, etc.*

Blank number.	Branch of occupation.	Birthplace.	Nationality of father.	Nationality of mother.	Mar., single, wid.	Children in family.
7,937	Nat. heeler...	Nova Scotia.....	Nova Scotia...	Nova Scotia.	S.	
7,950	Laborer.....	Canada	Canadian.....	Canadian	M.	2
8,008	Laster.....	Maine.....	American.....	American....	S.	
8,109	Cutter.....	New Hampshire.	American.....	American....	M.	
8,138	Edge setter..	New Hampshire.	American.....	American....	S.	
8,145	Finisher	Massachusetts ..	American.....	American....	M.	2
8,277	Cutter.....	New Hampshire.	Irish	Irish	M.	
8,303	Custom work	Scotland	Scotch.....	Scotch	M.	1
8,430	Laster.....	Maine.....	American.....	American....	M.	1
8,530	Nail sticker..	Massachusetts ..	American.....	American....	S.	
8,710	Heel trimmer	Maine.....	American.....	American....	M.	1
8,771	Laster.....	Maine.....	American.....	American....	M.	1
8,801	Scourer.....	New Hampshire.	American.....	American....	W.	4
8,898	Cutter.....	Maine.....	American.....	American....	S.	
8,957	Foreman.....	Massachusetts ..	American.....	American....	M.	
8,976	Cutter.....	Massachusetts ..	American.....	American....	M.	1
8,977	Cutter.....	Vermont.....	American.....	American....	M.	1
9,024	Foreman.....	New Hampshire.	Irish	Irish	M.	4
9,165	Custom work	New Hampshire.	American.....	American....	W.	
9,308	Cutter.....	New Hampshire	American.....	American....	M.	2
9,713	Button sewer	New Hampshire.	American.....	American....	M.	2
9,901	Cutter.....	New Hampshire.	Canadian	Canadian....	S.	
9,930	Cutter.....	New Hampshire.	American.....	American....	M.	
9,950	Shanker.....	New Hampshire.	American.....	American....	M.	1
9,963	Cutter.....	Maine.....	American.....	American....	S.	
10,015	Cutter.....	New Hampshire.	Irish	Irish.....	S.	
10,024	Cutter.....	New Hampshire.	American.....	American....	M.	
10,026	Cutter.....	New Hampshire.	American.....	American....	M.	4
10,036	Treer.....	New Hampshire.	American.....	American....	M.	3
10,070	Cutter.....	New Hampshire.	American.....	American....	M.	1
10,078	Finisher.....	New Hampshire.	American.....	American....	M.	3
10,115	Heel finisher	Ireland	French.....	English.....	M.	
10,119	Stock fitter ..	New Hampshire.	American.....	American....	S.	
10,223	Finisher.....	Maine...	American.....	American....	M.	1
10,253	Treer.....	Maine.....	American.....	American....	S.	

INDIVIDUAL REPORTS.

SHOE WORKERS.

Showing school conditions, age began work, years in occupation, hours employed weekly, number of days unemployed and cause of non-employment, wage conditions, etc.

No. at school.	Weeks at school.	Dependent in fam.	Age began work.	Yrs. in occupation	With employer.	Hours weekly.	Hours Saturday.	Days unemployed during year.	Cause of non-employment.	Wages per week.	Wages decreased.	Weekly reduction.	Wages paid.
..	..	..	18	4	2	59	9	24	Vacation	$9.00	yes	$2.00	Weekly.
..	..	4	13	3	..	..	..	150	.....	.....	....	.....	Weekly.
..	..	..	18	4	4	59	9	100	Hard times	12.00	yes	2.00	Weekly.
..	..	2	17	10	7	59	9	90	No work	13.00	yes	.50	Weekly.
..	..	..	12	3	2	59	9	150	No work	11.00	yes	1.50	Weekly.
..	..	4	11	6	6	59	9	150	.....	10.00	yes	3.00	Weekly.
..	..	2	18	8	6	59	9	100	No work	13.50	no	.....	Weekly.
1	..	3	13	..	..	..	..	....	.....	.....	....	.....	Irregularly.
1	26	3	11	16	..	58	8	95	No work	10.00	yes	1.00	Weekly.
..	..	..	14	1	1	..	..	150	No work	.....	yes	4.00	Weekly.
..	..	4	12	10	10	54	9	60	Shutdown	9.00	yes	1.50	Weekly.
..	..	3	15	6	5	52	7	60	No work	11.00	yes	1.00	Weekly.
..	..	5	19	1	1	50	5	30	Shutdown	12.00	yes	1.25	Weekly.
..	..	..	14	8	6	59	9	70	.....	13.00	yes	.50	Weekly.
..	..	2	16	20	7	35	5	....	.....	20.00	no	.....	Weekly.
..	..	3	18	4	4	59	9	150	Hard times	12.00	yes	2.00	Weekly.
1	38	3	14	6	2	59	9	150	No work	9.50	yes	2.50	Weekly.
3	36	6	12	10	10	59	9	....	.....	17.00	no	.....	Weekly.
..	..	..	18	40	40	..	..	120	Sickness	.....	....	.....	Weekly.
..	..	4	18	8	8	59	9	82	Sickness and no work	11.00	no	.....	Weekly.
..	..	4	10	8	4	59	9	185	No work	.....	no	.....	Irregularly.
..	..	..	15	4	3	59	9	....	.....	12.00	no	.....	Weekly.
..	..	3	12	30	23	50	8	72	Hard times	12.00	yes	2.50	Fortnightly.
1	36	3	18	2	1	59	9	100	No work	6.00	no	.....	Weekly.
..	..	2	17	15	15	50	8	40	.....	12.00	no	.....	Fortnightly.
..	..	2	10	10	3	59	9	150	No work	13.50	no	.....	Weekly.
..	..	2	18	13	13	60	10	12	Vacation	7.50	no	.....	Fortnightly.
2	36	5	17	18	14	59	9	12	Vacation	10.00	no	.....	Fortnightly.
1	..	5	17	2	2	59	9	150	.....	12.00	no	.....	Fortnightly.
1	36	3	17	20	20	59	9	75	.....	12.00	no	.....	Fortnightly.
3	36	5	15	28	25	53	8	72	.....	12.00	yes	2.00	Fortnightly.
..	..	2	22	10	6	59	9	100	Sickness and no work	12.00	no	.....	Weekly.
..	..	..	16	12	1	49	7	12	Vacation	9.00	no	.....	Fortnightly.
1	36	3	15	2	1	..	..	....	.....	.....	yes	.....	Weekly.
..	..	..	14	..	2	59	9	52	Sickness	12.00	no	.....	Weekly.

INDIVIDUAL REPORTS.

SHOE WORKERS.

TABLE 50 (CONCLUDED).—*Showing individual earnings, income from other sources and total income, living expenses, savings account, home conditions, etc.*

Blank number.	Wages withheld.	No. days' pay.	Individual earnings of self during year.	Income from other sources.	Total income.	Living expenses (single).	Living expenses (with family).	Earn more than family expenses.	Wages of wife or children required.	Savings bank account.	Saved earnings.	Own a home.	Estimated value of home.	Home incumbered.
7,937	yes	3	$425	.....	$425	$250	.....	yes	....	....	....	no	.....	....
7,950	no	..	.....	.....	.....	.....	.....	no	....	....	....	no	.....	....
8,008	yes	6	600	.....	600	300	.....	yes	....	yes	yes	no	.....	....
8,109	yes	6	475	.....	475	.....	$475	no	....	yes	no	no	.....	....
8,138	yes	6	286	.....	286	286	.....	no	....	no	no	no	.....	....
8,145	yes	6	260	.....	260	.....	260	no	yes	no	no	no	.....	....
8,277	yes	2	300	.....	300	.....	.....	no	yes	yes	no	no	.....	....
8,303	....	..	....	.....	.....	.....	.....	no	....	....	....	yes	$600	no
8,430	no	..	360	.....	360	.....	360	no	no	no	no	no	.....	....
8,530	yes	2	52	.....	52	.....	.....	no	...	no	no	no	.....	....
8,710	no	..	375	.....	375	.....	375	no	....	no	no	no	.....	....
8,771	yes	2	462	.....	462	.....	400	yes	....	no	no	no	.....	....
8,801	yes	6	550	.....	550	.....	450	yes	....	no	yes	no	.....	....
8,898	no	..	520	.....	520	270	.....	yes	no	yes	yes	no	.....	....
8,957	no	..	1,040	.....	1,040	.....	600	yes	no	yes	yes	no	.....	....
8,976	yes	2	312	.....	312	.....	.....	no	....	yes	no	no	.....	....
8,977	yes	2	300	.....	300	.....	450	no	....	no	no	no	.....	....
9,024	no	..	884	$15	899	.....	899	no	....	yes	no	yes	1,700	no
9,165	....	..	.....	.....	.....	256	.....	....	....	yes	yes	no	.....	....
9,308	no	..	423	.....	423	.....	488	no	....	yes	no	no	.....	....
9,713	no	..	271	.....	271	.....	.....	no	....	no	no	no	.....	....
9,901	yes	2	500	19	519	.....	.....	yes	....	yes	yes	yes	2,000	no
9,930	no	..	482	650	1,132	.....	422	yes	no	yes	yes	no	.....	....
9,950	yes	3	200	158	358	.....	200	no	yes	no	no	yes	1,500	no
9,963	no	..	540	.....	540	500	.....	no	....	no	no	yes	2,000	yes
10,015	yes	3	337	.....	337	300	.....	yes	....	no	no	no	.....	....
10,024	yes	2	400	.....	400	.....	290	yes	....	no	yes	yes	1,000	yes
10,026	no	..	500	5	505	.....	500	no	....	no	no	yes	.....	yes
10,036	no	..	300	.....	300	.....	300	no	....	yes	no	yes	3,600	no
10,070	no	..	450	.....	450	.....	.....	....	....	no	no	no	.....	....
10,078	no	..	450	144	594	.....	475	no	....	no	no	yes	1,200	no
10,115	yes	6	400	.....	400	.....	.....	yes	....	no	yes	no	.....	....
10,119	no	..	450	.....	450	.....	450	no	....	yes	no	yes	1,000	no
10,223	no	..	.....	.....	.....	.....	.....	....	....	....	....	....	.....	....
10,253	no	..	516	.... ..	516	200	.....	yes	....	....	....	no	.....	....

INDIVIDUAL REPORTS.

SHOE WORKERS.

Showing home conditions, board per week with room, number of fraternal orders connected with, amount yearly dues, weekly benefits, death benefits, trade union, etc.

Ins. against fire.	No. rooms occ'p'd.	Sanitary condition of home.	Occupy tenement.	Monthly rent.	No. rooms occ'p'd.	Sanitary condition of tenement.	Board per week, including room.	Keep account of living expenses.	Take books from public library.	No. frat'l orders.	Am't yearly dues, assessments, etc.	Weekly benefits.	Death benefits payable to family.	Belong to trade union.
....	..	.....	no	.....	..	.....	$4.00	no	yes	1	$13.00	.....	$2,000	no
....	..	.....	yes	$6.00	3	good	.....	no	no	..	.....	.....	.....	no
....	..	.....	no	.....	..	.....	4.00	yes	no	1	5.00	$5.00	25	yes
....	..	.....	yes	7.00	7	good	.....	no	yes	3	18.00	8.00	2,300	no
....	..	.....	no	.....	..	.....	4.25	no	no	..	.....	.....	.....	no
....	..	.....	yes	13.00	6	.....	.....	no	no	1	4.00	4.00	25	no
....	..	.....	no	.....	..	.....	5.00	yes	no	2	10.00	9.00	100	yes
yes	6	good	no	.....	..	.....	.....	no	yes	2	7.00	.....	.....	no
....	..	.....	yes	6.50	5	good	.....	no	no	4	24.00	12.00	100	yes
....	..	.....	.....	.....	..	good	.....	no	.....	..	.....	.....	.....	no
....	..	.....	yes	8.00	5	.....	.....	yes	no	1	4.00	4.00	1,000	yes
....	..	.....	yes	10.00	7	.....	.....	yes	yes	2	22.00	5.00	2,000	yes
....	..	.....	.....	.....	5	good	8.00	no	no	1	35.00	.....	3,000	no
....	..	.....	.....	.....	..	good	6.00	no	yes	1	8.00	4.00	30	no
....	..	.....	yes	13.00	6	good	.....	no	no	1	6.00	3.00	50	no
....	..	.....	yes	8.00	3	fair	.....	yes	no	1	10.00	2.00	100	no
....	..	.....	yes	9.00	6	fair	.....	yes	yes	..	.....	.....	.....	no
yes	9	fair	no	.....	..	.....	.....	no	yes	2	10.00	7.00	1,000	no
....	..	.....	.....	.....	..	.....	3.75	.....	yes	3	15.00	10.00	100	no
....	..	.....	yes	10.00	6	good	.....	yes	yes	..	.....	.....	.....	no
....	..	.....	yes	8.50	5	fair	.....	no	no	3	15.00	11.00	110	no
yes	9	good	no	.....	..	.....	.....	no	no	..	.....	.....	.....	yes
....	..	.....	yes	12.50	9	good	.....	no	no	4	7.00	.....	2,000	no
yes	8	good	no	.....	..	.....	.....	no	yes	..	.....	.....	.....	no
yes	10	good	no	.....	..	.....	.....	no	yes	1	5.00	8.00	.....	no
....	..	.....	.....	.....	..	.....	5.00	no	no	..	.....	.....	.....	yes
yes	7	fair	no	.....	..	.....	.....	no	yes	..	.....	.....	.....	yes
yes	10	good	no	.....	..	.....	.....	.....	.....	1	15.00	5.00	2,000	....
yes	7	good	no	.....	..	.....	.....	no	yes	..	.....	.....	.....	no
....	..	.....	yes	10.50	6	fair	.....	no	yes	2	45.00	4.00	3,500	no
yes	10	good	no	.....	..	.....	.....	yes	yes	4	25.00	36.00	2,000	no
....	..	.....	yes	7.00	6	good	.....	no	yes	..	.....	.....	.....	no
yes	..	fair	no	.....	..	.....	.....	no	no	1	8.00	7.00	40	no
....	..	.....	.....	.....	..	.....	.....	.....	.....	..	.....	.....	.....	....
....	..	.....	.....	.....	..	.....	4.00	no	no	2	6.00	3.00	.....	no

INDIVIDUAL REPORTS.

SHOE WORKERS.

TABLE 50 (CONTINUED).—*Showing branch of occupation in which engaged, birthplace of person reporting, nationality of father and mother, married or single, etc.*

Blank number.	Branch of occupation.	Birthplace.	Nationality of father.	Nationality of mother.	Mar., single, wid.	Children in family.
10,256	Sole layer	New Hampshire.	American	American	M.	
10,263	Laster	New Hampshire.	American	American	M.	2
10,296	Cutter	Ireland	Irish	Irish	M.	2
10,308	Cutter	New Hampshire.	Irish	Irish	M.	2
,360	Cutter	New Hampshire.	Irish	Irish	M.	2
10,392	Cutter	New Hampshire.	Irish	Irish	M.	
10,402	Cutter	Maine	English	English	S.	
10,421	Cutter	New Hampshire.	American	American	M.	1
10,422	Laster	New Hampshire.	American	American	M.	2
10,494	Cutter	Maine	American	American	M.	1

STONE WORKERS.

TABLE 51.—*Showing branch of occupation, birthplace, etc.*

366	Quarryman	New Hampshire.	American	American	M.	
554	Quarryman	Ireland	Irish	Irish	M.	2
3,157	Cutter	Ireland	Irish	Irish	S.	
5,009	Tool sharpener	Maine	American	American	W.	2
5,375	Cutter	Maine	American	American	M.	2
7,470	Cutter	New Hampshire.	Irish	Irish	M.	2

TAILORS.

TABLE 52.—*Showing branch of occupation, birthplace, etc.*

23	Tailor	Scotland	Scotch	Scotch	M.	2
3,709	Cutter	New Hampshire.	American	American	M.	1
6,026	Pressman	New Hampshire.	American	American	S.	
9,353	Cutter	New Hampshire.	American	American	M.	

INDIVIDUAL REPORTS.

SHOE WORKERS.

Showing school conditions, age began work, years in occupation, hours employed weekly, number of days unemployed and cause of non-employment, wage conditions, etc.

No. at school.	Weeks at school.	Dependent in fam.	Age began work.	Yrs. in occupation	With employer.	Hours weekly.	Hours Saturday.	Days unemployed during year.	Cause of non-employment.	Wages per week.	Wages decreased.	Weekly reduction.	Wages paid.
..	..	2	10	4	4	59	9	83	Vacation and no work	.....	no	.....	Fortnightly.
..	..	4	15	30	20	48	8	....	.....	$10.00	yes	$2.00	Fortnightly.
1	36	5	22	13	4	49	7	150	No work	11.00	yes	1.00	Fortnightly.
1	..	4	10	12	12	48	7	160	.....	10.00	yes	1.50	Fortnightly.
..	..	4	16	14	4	59	9	150	Hard times	12.00	yes	2.50	Fortnightly.
..	..	2	16	14	2	59	9	36	Vacation	12.00	yes	1.50	Weekly.
..	..	..	15	9	7	55	7	150	No work	10.00	yes	2.00	Fortnightly.
..	..	3	17	30	23	48	8	....	.....	13.50	no	.....	Fortnightly.
2	35	4	16	18	15	59	9	....	.....	7.50	no	.....	Fortnightly.
1	36	3	14	10	7	50	8	84	No work	10.00	no	.....	Fortnightly.

STONE WORKERS.

Showing school conditions, age began work, etc.

..	..	2	9	3	3	59	9	100	Sickness	$9.00	no	.....	Irregularly.
2	36	4	14	6	2	60	10	100	No work	10.50	no	.....	Fortnightly.
..	..	..	16	3	2	53	8	100	Strike	16.50	yes	$1.50	Monthly.
2	36	3	17	21	5	53	8	40	No work	18.00	no	.....	Monthly.
1	36	4	15	20	3	53	8	79	.....	18.00	no	.....	Monthly.
1	16	5	..	1	1	54	9	....	.....	12.00	no	.....	Weekly.

TAILORS.

Showing school conditions, age began work, etc.

1	36	3	14	36	36	..	..	....	.....	.....	....	.....	Irregularly.
1	36	4	18	17	11	66	14	28	Vacation	$18.00	no	.....	Weekly.
..	..	..	7	3	3	60	10	60	Vacation	8.00	no	.....	Fortnightly.
..	..	2	16	10	4	73	13	....	.....	18.00	no	.....	Monthly.

INDIVIDUAL REPORTS.

SHOE WORKERS.

TABLE 50 (CONCLUDED).—*Showing individual earnings, income from other sources and total income, living expenses, savings account, home conditions, etc.*

Blank number.	Wages withheld.	No. days' pay.	Individual earnings of self during year.	Income from other sources.	Total income.	Living expenses (single).	Living expenses (with family).	Earn more than family expenses.	Wages of wife or children required.	Savings bank account.	Saved earnings.	Own a home.	Estimated value of home.	Home incumbered.
10,256	no	..	$402	.....	$428	.....	$428	no	...	yes	no	no	.....	....
10,263	no	..	.....	.....	... .	.....	.....	yes	....	no	yes	yes	$1,000	yes
10,296	no	..	286	$70	356	.....	300	no	yes	no	no	no	.....	....
10,308	yes	1	250	.....	250	.....	.....	no	....	no	no	yes	1,200	yes
10,360	no	..	312	.....	312	.....	312	no	....	no	no	no	.....	....
10,392	no	..	500	350	850	.....	600	no	....	no	no	yes	$2,000	no
10,402	no	..	400	75	475	$250	.....	yes	....	yes	yes	no	.....	....
10,421	no	..	675	300	975	.....	.....	yes	....	yes	yes	yes	2,000	no
10,422	no	..	335	.....	335	.....	.....	no	....	no	no	yes	1,000	no
10,494	no	..	320	.....	320	.....	.....	no	....	no	no	no	.....	....

STONE WORKERS.

TABLE 51 (CONCLUDED).—*Showing individual earnings, income, etc.*

366	no	..	$300	170	470	$450	.....	no	no	yes	no	yes	$1,000	no
554	yes	15	350	.....	350	350	.....	no	yes	no	no	no	.....	....
3,157	yes	51	500	.....	500	324	.....	yes	....	yes	no	no	.....	....
5,009	yes	15	865	.....	865	865	.....	yes	no	yes	yes	yes	.....	....
5,375	no	..	700	.....	700	700	.....	no	....	no	no	no	.....	....
7,470	no	..	.....	.....	.....	.....	.....	yes	no	no	no	yes	2,000	yes

TAILORS.

TABLE 52 (CONCLUDED).—*Showing individual earnings, income, etc.*

23	yes	..	.....	.....	.....	.....	.....	no	yes	....	....	no	.....	....
3,709	no	..	$900	.....	$900	.....	.....	yes	....	yes	yes	no	.....	....
6,026	no	..	375	.....	375	.....	.....	yes	....	no	yes	no	.....	....
9,353	no	..	900	.....	900	.....	.....	yes	....	yes	yes	no	.....	....

INDIVIDUAL REPORTS.

SHOE WORKERS.

Showing home conditions, board per week with room, number of fraternal orders connected with, amount yearly dues, weekly benefits, death benefits, trade union, etc.

Ins. against fire.	No. rooms occ'p'd.	Sanitary condition of home.	Occupy tenement.	Monthly rent.	No. rooms occ'p'd.	Sanitary condition of tenement.	Board per week, including room.	Keep account of living expenses.	Take books from public library.	No. fra'l orders.	Am't yearly dues, assessments, etc.	Weekly benefits.	Death benefits payable to family.	Belong to trade union.
....	..	.....	yes	$11.00	7	.....	.....	yes	.....	2	$11.00	$6.00	$60	no
yes	6	.....	no	.....	..	.....	.....	yes	yes	2	12.00	3.00	.....	yes
....	..	.....	yes	7.50	5	fair	.....	yes	yes	..	.....	.....	.....	no
yes	6	good	no	.....	..	.....	.....	no	yes	1	4.00	3.00	15	no
....	..	.....	yes	9.00	5	.....	.....	no	yes	1	6.00	7.00	.....	no
yes	7	good	no	.....	..	.....	.....	yes	no	1	4.00	3.00	2,000	no
....	..	.....	.....	.....	..	.....	$4.00	no	yes	1	6.00	2.00	30	no
yes	8	good	no	.....	..	.....	.....	.....	yes	3	12.00	9.00	2,055	no
yes	5	good	no	.....	..	.....	.....	no	yes	..	.....	.....	.....	yes
....	..	.....	yes	10.00	5	good	.....	yes	yes	..	.....	.....	.....	no

STONE WORKERS.

Showing home conditions, fraternal statistics, etc.

yes	2	good	.....	.....	..	.....	$4.00	no	yes	2	$30.00	$6.00	$500	no
....	..	.....	yes	$5.00	4	good	.....	no	no	..	.....	.....	.....	no
....	..	.....	.....	.....	..	.....	4.50	no	no	2	15.00	13.00	150	yes
....	..	.....	yes	6.00	4	fair	.....	yes	.....	2	.....	.....	2,000	yes
....	..	.....	yes	15.00	7	good	.....	yes	yes	3	16.00	9.00	125	yes
yes	6	good	no	.....	..	.....	.....	yes	no	..	.....	.....	.....	no

TAILORS.

Showing home conditions, fraternal statistics, etc.

....	..	.....	yes	$12.00	4	good	.....	.....	no	1	14.00	.....	100	no
....	..	.....	yes	11.00	..	good	.....	no	yes	2	9.00	5.00	.....	no
....	..	.....	.....	.....	..	.....	2.75	no	yes	..	.....	.....	.....	no
....	..	.....	.....	.....	..	.....	10.00	.....	yes	1	5.00	.....	50	no

INDIVIDUAL REPORTS.

TANNERS.

TABLE 53.—*Showing branch of occupation in which engaged, birthplace of person reporting, nationality of father and mother, married or single, etc.*

Blank number.	Branch of occupation.	Birthplace.	Nationality of father.	Nationality of mother.	Mar., single, wid.	Children in family.
513	Tanner	New Hampshire.	American	American	M.	1
871	Shipper	England	English	English	S.	
2,627	Currier	New Hampshire.	American	American	S.	
6,245	Currier	Vermont	French	French	M.	3
8,298	Tanner	Ireland	Irish	Irish	M.	5
9,975	Foreman	New Hampshire.	American	American	S.	
10,197	Stuffer	New Hampshire.	American	American	M.	1

UPHOLSTERERS.

TABLE 54.—*Showing branch of occupation, birthplace, etc.*

2,616	Upholsterer	England	English	English	M.	3
2,768	Upholsterer	Ireland	Irish	Irish	M.	2
5,465	Upholsterer	New Hampshire.	Irish	Irish	S.	
9,541	Upholsterer	New Hampshire.	American	American	M.	

WOOD WORKERS.

TABLE NO. 55.—*Showing branch of occupation, birthplace, etc.*

378	Sawer	Vermont	American	American	M.	
1,057	Turner	New Hampshire.	American	American	M.	
1,076	Turner	New Hampshire.	American	American	M.	2
1,415	Sawer	New Hampshire.	American	American	S.	
2,599	Sawer	New Hampshire.	Irish	Irish	S.	
3,458	Turner	New Hampshire.	American	American	M.	
3,658	Wood worker	New Hampshire.	American	American	M.	1
4,043	Turner	New York.	American	American	M.	5
6,419	Wood worker	New York.	American	American	M.	
6,620	Wood worker	New Hampshire.	American	American	M.	
6,813	Molder	New Hampshire.	American	American	M.	1
9,102	Turner	New Hampshire.	American	American	S.	
9,435	Molder	New Hampshire.	American	American	M.	2
9,695	Carver	Massachusetts	American	American	M.	

INDIVIDUAL REPORTS.

TANNERS.

Showing school conditions, age began work, years in occupation, hours employed weekly, number of days unemployed and cause of non-employment, wage conditions, etc.

No. at school.	Weeks at school.	Dependent in fam.	Age began work.	Yrs. in occupation.	With employer.	Hours weekly.	Hours Saturday.	Days unemployed during year.	Cause of non-employment.	Wages per week.	Wages decreased.	Weekly reduction.	Wages paid.
1	36	3	..	25	8	60	10	....	.....	$8.00	no	.....	Fortnightly.
..	..	..	16	2	2	60	10	36	Shutdown	8.00	yes	$1.00	Fortnightly.
..	..	3	..	1	1	59	9	50	No work.....	7.50	no	.....	Fortnightly.
1	37	5	14	9	9	60	10	54	No work.....	15.00	no	.....	Monthly.
2	36	7	14	8	8	60	10	150	Hard times.....	8.00	yes	1.00	Fortnightly.
..	..	..	10	44	24	60	10	....	.....	18.00	no	.....	Quarterly.
1	36	3	5	17	17	60	10	30	Shutdown	10.50	no	.....	Fortnightly.

UPHOLSTERERS.

Showing school conditions, age began work, etc.

..	..	5	13	8	..	60	10	....	.....	$15.00	no	.....	Weekly.
1	36	4	15	21	12	59	9	....	.....	16.00	yes	$1.00	Weekly.
..	..	..	13	7	1	59	9	125	No work.....	12.00	yes	3.00	Weekly.
..	..	2	7	5	1	60	10	90	No work.....	15.00	....	.....	Weekly.

WOOD WORKERS.

Showing school conditions, age began work, etc.

..	..	2	16	4	2	60	10	....	.....	$10.50	no	.....	Monthly.
..	..	2	10	22	2	48	..	30	Vacation.....	10.00	no	.....	Monthly.
..	..	4	20	6	5	..	..	30	Shutdown.....	15.00	no	.....	Fortnightly.
..	..	..	..	10	10	90	15	....	.....	12.00	no	.....	Irregularly.
..	..	..	13	1	1	60	10	285	No work.....	6.00	no	.....	Weekly.
..	..	2	14	28	13	55	5	90	Sickness	9.00	no	.....	Weekly.
1	36	3	16	9	9	60	10	200	No work.....	15.00	no	.....	Fortnightly.
3	36	7	16	5	5	59	9	50	No work.....	8.00	yes	$2.75	Weekly.
..	..	2	16	1	1	64	9	132	No work.....	7.50	yes	3.00	Weekly.
..	..	3	15	23	18	60	10	....	.....	12.00	no	.....	Weekly.
..	..	3	20	6	5	59	9	40	Hard times.....	10.00	no	.....	Weekly.
..	..	2	14	4	1	60	10	120	No work	13.50	yes	1.50	Monthly.
1	30	4	..	15	13	60	10	....	.....	12.00	no	.....	Monthly.
..	..	2	18	1	1	54	9	....	.....	11.00	yes	1.25	Weekly.

INDIVIDUAL REPORTS.

TANNERS.

TABLE 53 (CONCLUDED).—*Showing individual earnings, income from other sources and total income, living expenses, savings account, home conditions, etc.*

Blank number.	Wages withheld.	No. days' pay.	Individual earnings of self during year.	Income from other sources.	Total income.	Living expenses (single).	Living expenses (with family).	Earn more than family expenses.	Wages of wife or children required.	Savings-bank account.	Saved earnings.	Own a home.	Estimated value of home.	Home incumbered.
513	....	..	$400	.....	$400	$400	.....	no	....	yes	no	yes	$1,500	no
871	yes	5	350	.....	350	.....	$260	yes	....	no	no	no	.....	....
2,627	yes	4	313	.....	313	.....	313	no	....	no	no	no	.....	....
6,245	no	..	647	.....	647	647	.....	no	..	no	no	no	.....	....
8,298	no	..	.....	.....	312	312	.....	no	yes	no	no	yes	1,300	yes
9,975	no	..	864	.....	.....	.....	.....	yes	....	no	no	yes	3,500	no
10,197	no	..	480	$105	585	500	.....	yes	....	no	no	yes	2,500	yes

UPHOLSTERERS.

TABLE 54 (CONCLUDED).—*Showing individual earnings, income, etc.*

2,616	no	..	$600	.....	$600	.....	$400	yes	yes	no	no	no	.....	....
2,768	no	..	722	.....	722	.....	522	yes	no	no	yes	no	.....	....
5,465	no	..	420	.....	420	$230	.....	yes	....	yes	no	no	.....	....
9,541	yes	1	525	.....	525	.....	.....	yes	no	yes	no	yes	$3,000	no

WOOD WORKERS.

TABLE 55 (CONCLUDED).—*Showing individual earnings, income, etc.*

378	no	..	.....	.....	.....	.....	.....	....	no	no	no	no	.....	....
1,057	no	.	$450	.....	$450	.....	$400	....	....	yes	no	yes	$600	no
1,076	yes	4	672	$168	840	.....	500	yes	....	no	yes	yes	1,800	yes
1,415	no	..	675	300	975	.....	.....	no	....	no	no	yes	2,000	yes
2,599	yes	6	49	.....	49	$169	.....	no	....	no	no	no	.....	....
3,458	no	..	315	.....	315	.....	600	no	....	yes	no	yes	2,000	no
3,658	no	..	250	60	310	.....	.....	yes	no	yes	yes	yes	2,000	yes
4,043	yes	6	300	200	500	.....	600	no	yes	no	no	no	.....	....
6,419	no	..	370	112	482	.....	538	no	yes	no	no	yes	2,000	yes
6,620	yes	1	.....	.....	.....	.....	.....	yes	....	yes	yes	no	.....	....
6,813	yes	6	475	20	495	.....	600	no	....	yes	no	no	.....	....
9,102	yes	5	432	.....	432	300	.....	.....	.....	no	no	no	.....	....
9,435	no	..	.....	.....	.....	.....	.....	.....	.....	.....	....	yes	2,500	no
9,695	no	..	.....	.....	.....	.....	.....	no	no	yes	no	no	.....	....

INDIVIDUAL REPORTS.

TANNERS.

Showing home conditions, board per week with room, number of fraternal orders connected with, amount yearly dues, weekly benefits, death benefits, trade union, etc.

Ins. against fire.	No. rooms occ'p'd.	Sanitary condition of home.	Occupy tenement.	Monthly rent.	No. rooms occ'p'd	Sanitary condition of tenement.	Board per week, including room.	Keep account of living expenses.	Take books from public library.	No. fra'l orders.	Am't yearly dues, assessments, etc.	Weekly benefits.	Death benefits payable to family.	Belong to trade union.
yes	9	.....	no	.....	..	.....	.....	no	no	1	$7.00	$3.00	.....	no
....	..	.....	.....	.....	..	.....	$4.00	no	yes	..	.....	.....	.....	no
....	..	.....	yes	$9.00	5	poor	.....	no	yes	1	20.00	3.00	$1,000	yes
....	..	.....	yes	18.00	6	good	.....	no	yes	2	12.00	10.00	100	no
yes	4	good	no	.....	..	.....	.....	no	no	1	7.00	5.00	50	no
yes	7	good	no	.....	..	.....	.....	no	no	2	7.00	5.00	.....	no
yes	7	good	no	.....	..	.....	.....	no	yes	..	.....	.....	.....	no

UPHOLSTERERS.

Showing home conditions, fraternal statistics, etc.

....	..	.....	yes	$7.00	4	good	.....	no	no	1	$6.00	$5.00	$100	no
....	..	.....	yes	12.00	4	fair	.....	yes	no	..	.....	.....	.....	no
....	..	.....	.....	.....	..	.....	$6.50	no	no	1	6.00	5.00	100	no
yes	8	good	no	.....	..	.....	.....	no	no	2	7.00	3.00	2,000	no

WOOD WORKERS.

Showing home conditions, fraternal statistics, etc.

....	..	.....	yes	$4.00	5	good	.....	no	no	..	.....	.....	.....	no
yes	6	good	no	.....	..	.....	.....	no	yes	..	.....	.....	.....	no
yes	..	.....	no	.....	..	.....	.....	yes	no	1	$38.00	$2.00	$1,000	no
yes	7	good	yes	11.00	7	good	.....	no	no	..	.....	.....	.....	no
....	..	.....	no	.....	..	.....	$3.25	no	no	..	.....	.....	.....	no
yes	..	good	no	.....	..	.....	.....	no	no	2	.....	2.00	30	no
yes	7	good	yes	14.00	7	good	.... .	no	yes	3	.....	20.00	300	no
....	..	.....	yes	10.00	6	fair	.....	no	yes	1	2.00	.....	.....	no
yes	5	good	no	.....	..	.... .	.....	yes	yes	5	39.00	.....	2,000	no
....	..	.....	yes	12.00	5	good	.....	no	no	1	16.00	.....	1,000	no
....	..	.....	yes	10.00	6	fair	.....	yes	no	2	14.00	10.00	100	no
....	..	.....	yes	6.50	2	good	5.50	no	no	4	28.00	9.00	2,100	no
yes	..	.....	no	.....	..	.....	.....	.....	yes	..	.....	.....	.....	
....	..	.....	yes	14.00	5	fair	.....	no	no	..	.....	.....	.....	no

INDIVIDUAL REPORTS.

MISCELLANEOUS.

TABLE 56.—*Showing branch of occupation in which engaged, birthplace of person reporting, nationality of father and mother, married or single, etc.*

Blank number.	Branch of occupation.	Birthplace.	Nationality of father.	Nationality of mother.	Mar., single, wid.	Children in family.
59	Fireman	Ireland	Irish	Irish	M.	4
115	Shipper	Ireland	Irish	Irish	M.	2
153	Teamster	Ireland	Irish	Scotch	M.	
305	Driver	Maine	American	American	S.	
1,174	Night watch	New Hampshire.	American	American	M.	1
1,311	Teacher	New Hampshire.	American	American	S.	
1,341	Sawer	Massachusetts	American	American	M.	
1,665	Dryer	New Hampshire.	American	American	M.	2
2,217	Mill operative.	Canada	French	French	M.	4
2,247	Watchman	Canada	Canadian	French	M.	2
2,262	Painter	New Hampshire.	American	American	S.	
2,414	Weaver	Maine	American	American	M.	1
2,718	Silversmith	Connecticut	Irish	Scotch	S.	
3,124	Electrician	New Hampshire.	American	American	M.	1
3,146	Teamster	Massachusetts	American	American	M.	1
3,620	Silversmith	Canada	English	Canadian	M.	1
3,710	Silver plater	New Hampshire.	American	American	M.	1
3,748	Teamster	Ireland	Irish	Irish	M.	
3,957	Coachman	New Brunswick.	Canadian	Canadian	S.	
4,058	Mill operative.	New York	English	English	M.	1
4,219	Wool sorter	New Hampshire.	Irish	Irish	S.	
4,302	Laborer	New Hampshire.	American	American	S.	
4,355	Butcher	New Hampshire.	American	American	S.	
4,390	Mill operative.	New Hampshire.	American	American	S.	
4,408	Plumber's help	New Hampshire.	Irish	Irish	S.	
4,592	Cobbler	New Hampshire.	American	American	M.	4
4,970	Confectioner	Vermont	American	American	M.	2
5,087	Card clothier	New York	Irish	Irish	M.	3
5,090	Cloth picker	United States	Irish	Irish	S.	
5,203	Overseer	Vermont	American	American	M.	2
5,250	Milkman	Ireland	Irish	Irish	S.	
5,319	Laborer	New Hampshire.	American	American	S.	
5,529	Fireman	New Hampshire.	American	American	M.	5
5,779	Electrician	Maine	American	American	M.	1
6,023	Attorney	New Hampshire.	American	American	M.	

INDIVIDUAL REPORTS.

MISCELLANEOUS.

Showing school conditions, age began work, years in occupation, hours employed weekly, number of days unemployed and cause of non-employment, wage conditions, etc.

No. at school.	Weeks at school.	Dependent in fam.	Age began work.	Yrs. in occupation.	With employer.	Hours weekly.	Hours Saturday.	Days unemployed during year.	Cause of non-employment.	Wages per week.	Wages decreased.	Weekly reduction.	Wages paid.
2	32	6	9	22	14	60	9	....	.....	$10.50	no	.....	Fortnightly.
..	..	4	14	5	5	60	10	....	.....	8.50	yes	$.60	Fortnightly.
..	..	2	8	25	3	60	6	....	.....	6.00	yes	4.00	Fortnightly.
..	..	..	..	5	5	..	..	75	Vacation.....	6.00	....	.....	Monthly.
1	30	3	12	4	3	52	12	35	Vacation and sickness...	8.50	no	.....	Monthly.
..	..	..	18	25	..	36	..	70	Vacation.....	9.00	no	.....	Irregularly.
..	..	3	10	8	8	60	10	100	Shutdown.....	8.00	no	.....	Fortnightly.
1	36	5	..	1	1	60	9	90	Hard times	6.50	yes	1.20	Weekly.
2	40	7	..	11	5	59	9	72	No work	9.00	yes	.60	
1	25	4	17	3	3	66	11	13	Vacation.....	8.50	no	.....	Weekly.
..	..	..	..	4	4	60	10	....	.....	9.00	no	.....	
1	36	3	24	30	8	57	7	22	Sickness	10.50	yes	1.80	Weekly.
..	..	2	16	6	5	59	9	....	.....	12.00	no	.....	Weekly.
..	..	3	16	1	1	57	7	18	Vacation.....	10.50	no	.....	Weekly.
..	..	4	17	22	20	53	8	14	Vacation.....	10.00	yes	1.00	Monthly.
..	..	3	23	3	3	59	9	30	.....	12.00	no	.....	Weekly.
..	..	3	12	42	41	59	9	12	Vacation.....	15.00	yes	1.50	Weekly.
..	..	2	13	2	1	60	10	....	.....	9.00	....	.....	
..	..	..	10	1	1	72	12	12	Vacation.....	10.00	no	.....	Weekly.
..	..	3	16	5	1	60	7	....	.....	7.50	yes	1.80	Weekly.
..	..	..	15	16	2	60	8	19	Vacation.....	12.00	no	.....	Fortnightly.
..	..	..	15	..	1	54	9	25	Vacation.....	9.00	yes	.75	Monthly.
..	..	..	..	17	1	78	15	14	Vacation...	6.00	no	.....	Weekly.
..	..	..	15	1	1	58	9	60	No work	6.00	no	.....	Weekly.
..	..	..	16	1	1	53	8	100	No work.....	7.50	no	.....	Weekly.
1	31	7	14	20	2	80	15	90	No work.....	9.00	yes	2.00	Irregularly.
1	36	4	..	5	3	48	8	100	No work	18.00	yes	.75	
..	..	6	12	25	..	..	..	210	No work.....	22.00	no	.....	
..	..	..	14	5	1	60	9	90	No work	6.00	no	.....	Weekly.
2	36	4	18	20	6	57	7	12	Vacation.....	.....	no	.....	Weekly.
..	..	..	18	10	10	90	15	....	.....	7.50	no	.....	Monthly.
..	..	..	14	2	2	59	9	....	.....	12.00	no	.....	Monthly
3	30	7	16	1	1	66	11	....	.....	10.50	no	.....	Weekly.
..	..	3	17	9	3	60	10	6	Vacation.....	15.00	no	.....	Fortnightly.
..	..	2	..	20	3	60	10	....	.....	.....	no	.....	Irregularly.

INDIVIDUAL REPORTS.

MISCELLANEOUS.

TABLE 56 (CONCLUDED).—*Showing individual earnings, income from other sources and total income, living expenses, savings account, home conditions, etc.*

Blank number.	Wages withheld.	No. days' pay.	Individual earnings of self during year.	Income from other sources.	Total income.	Living expenses (single).	Living expenses (with family).	Earn more than family expenses.	Wages of wife or children required.	Savings-bank account.	Saved earnings.	Own a home.	Estimated value of home.	Home incumbered.
59	no	..	$642	.....	$642	.....	.....	yes	no	yes	yes	no	.....	....
115	yes	3	437	.....	437	.....	$437	no	yes	....	....	no	.....	....
153	yes	8	480	.....	480	.....	440	no	yes	no	no	no	.....	....
305	no	..	240	.....	240	.....	.....	....	....	yes	yes	....	.....	....
1,174	no	..	465	35	500	.....	.....	yes	....	no	yes	no	.....	....
1,311	....	..	362	.....	362	$300	.....	no	....	yes	no	yes	350	no
1,341	yes	7	300	50	350	.....	300	yes	....	no	yes	yes	1,100	yes
1,665	yes	6	220	.....	220	.....	220	no	yes	no	no	no	.....	....
2,217	no	..	350	132	482	.....	600	no	yes	no	no	yes	2,800	yes
2,247	no	..	435	26	461	.....	500	no	....	no	no	no	.....	....
2,262	no	..	.....	.....	.....	208	.....	....	....	....	....	no	.....	....
2,414	no	..	504	120	624	.....	600	no	no	no	no	no	.....	....
2,718	yes	1	.....	.....	.....	260	.....	yes	....	no	yes	no	.....	....
3,124	yes	2	500	100	600	.....	400	yes	....	no	no	no	.....	....
3,146	no	..	400	.....	400	.....	500	no	....	yes	no	yes	1,000	no
3,620	yes	1	550	.....	550	.....	600	no	....	no	no	no	.....	....
3,710	no	..	750	.....	750	.....	750	no	....	no	no	yes	2,000	no
3,748	....	..	.....	.....	.....	.....	.....	no	....	no	no	no	.....	....
3,957	no	..	500	.....	500	260	.....	yes	....	no	yes	no	.....	....
4,058	yes	6	.....	.....	.....	.....	.....	no	no	no	yes	no	.....	....
4,219	yes	1	544	.....	544	532	.....	no	....	no	no	no	.....	....
4,302	no	..	475	.....	475	228	.....	yes	....	yes	yes	no	.....	....
4,355	no	..	300	.....	300	208	.....	....	....	yes	no	no	.....	....
4,390	no	..	252	.....	252	260	.....	yes	....	yes	yes	no	.....	....
4,408	no	..	750	.....	750	750	.....	no	....	no	no	no	.....	....
4,592	no	..	315	.....	315	.....	315	no	....	no	no	no	.....	....
4,970	no	..	600	150	750	.....	750	no	yes	no	no	no	.....	....
5,087	....	..	292	.....	292	.....	.....	no	no	no	no	no	.....	....
5,090	no	..	324	.....	324	.....	.....	....	....	no	yes	no	.....	....
5,203	no	..	1,500	.....	1,500	.....	1,500	no	....	yes	no	no	.....	....
5,250	no	..	360	.....	360	.....	.....	yes	....	yes	yes	no	.....	....
5,319	no	..	450	.....	450	.....	.....	....	....	yes	yes	no	.....	....
5,529	yes	8	500	.....	500	.....	500	no	yes	no	no	no	.....	....
5,779	no	..	765	.....	765	.....	765	no	....	....	....	no	.....	....
6,023	....	..	1,500	.....	1,500	.....	1,200	yes	....	yes	no	yes	7,000	yes

INDIVIDUAL REPORTS.

MISCELLANEOUS.

Showing home conditions, board per week with room, number of fraternal orders connected with, amount yearly dues, weekly benefits, death benefits, trade union, etc.

Ins. against fire.	No. rooms occ'p'd.	Sanitary condition of home.	Occupy tenement.	Monthly rent.	No. rooms occ'p'd.	Sanitary condition of tenement.	Board per week, including room.	Keep account of living expenses.	Take books from public library.	No. fra'l orders.	Am't yearly dues, assessments, etc.	Weekly benefits.	Death benefits payable to family.	Belong to trade union.
....	..	.....	.....	.....	..	.....	.....	no	no	..	.....	.....	.....	no
....	..	.....	yes	$3.00	3	good	.....	no	yes	..	.....	.....	.....	no
....	..	.....	yes	5.00	3	good	.....	no	no	..	.....	.....	.....	no
....	..	.....	.....	.....	..	.....	.....	.....	.....	2	$7.00	$5.00	$50	no
....	..	.....	no	.....	..	.....	.....	no	yes	1	20.00	5.00	1,000	no
yes	4	good	no	.....	..	.....	.....	no	yes	1	2.00	.....	.....	no
yes	5	good	no	.....	..	.....	.....	no	no	1	6.00	5.00	40	no
....	..	.....	yes	8.00	5	good	.....	no	yes	1	15.00	.....	2,000	no
yes	7	good	yes	12.00	..	good	.....	no	no	..	.....	.....	.....	no
....	..	.....	yes	5.50	4	poor	.....	no	no	..	.....	.....	.....	no
...	..	.....	yes	4.00	..	good	$4.00	no	no	1	23.00	.....	1,000	no
....	..	.....	yes	5.00	5	good	.....	no	yes	3	5.00	.....	25	no
....	..	.....	no	.....	..	.....	5.00	no	no	..	.....	.....	.....	no
...	..	.....	yes	4.00	4	good	.....	no	yes	1	13.00	.....	1,000	no
yes	3	good	yes	10.00	5	good	.....	yes	no	..	.....	.....	.....	no
....	..	.....	no	.....	..	.....	4.50	.....	yes	1	.....	.....	1.000	no
yes	8	good	no	.....	..	.....	.. ....	no	no	1	16.00	.....	2,000	no
....	..	.....	yes	10.00	4	poor	.....	no	yes	2	10.00	5.00	100	no
....	..	.....	no	.....	..	.....	5.00	no	no	..	.....	.....	.....	no
....	..	.....	yes	7.00	4	.....	.....	no	yes	..	.....	.....	.....	no
....	..	.....	no	.....	..	.....	4.00	yes	yes	2	12.00	10.00	150	no
....	..	.....	no	.....	..	.....	4.00	yes	no	..	.....	.....	.....	no
....	..	.....	no	.....	..	.....	4.00	.....	no	1	.....	5.00	2,000	no
....	..	.....	no	.....	..	.....	5.00	no	yes	..	.....	.....	.....	no
....	..	.....	no	.....	..	.....	.....	.....	yes	..	.....	.....	.....	no
....	..	.....	yes	5.00	3	poor	.....	no	no	..	.....	.....	.....	no
....	..	.....	yes	14.00	6	good	.....	no	yes	2	15.00	2.00	50	no
....	..	.....	yes	14.00	7	fair	.....	no	no	..	.....	.....	.....	no
....	..	.....	.....	.....	..	.....	.....	no	no	..	.....	.....	.....	no
....	..	.....	yes	8.00	8	good	.....	yes	yes	2	10.00	.....	4,000	no
....	..	.....	no	.....	..	.....	4.00	no	yes	4	24.00	20.00	150	no
....	..	.....	no	.....	..	.....	4.00	yes	no	2	13.00	10.00	.....	no
....	..	.....	yes	4.00	6	good	.....	no	.....	..	.....	.....	.....	no
....	..	.....	yes	15.00	5	good	.....	.....	no	2	27.00	5.00	1,050	no
yes	8	good	no	.....	..	.....	.....	no	yes	2	30.00	.....	.....	no

INDIVIDUAL REPORTS.

MISCELLANEOUS.

TABLE 56 (CONTINUED).—*Showing branch of occupation in which engaged, birthplace of person reporting, nationality of father and mother, married or single, etc.*

Blank number.	Branch of occupation.	Birthplace.	Nationality of father.	Nationality of mother.	Mar., single, wid.	Children in family.
6,266	Meat cutter....	Canada	Canadian.....	Canadian	S.	
6,304	Teamster.....	New Hampshire.	American.....	American....	M.	2
6,373	Photographer.	Germany	German	German.....	S.	
6,400	Pulpman.....	New York.....	American.....	American....	M.	
7,366	Block maker..	New Hampshire.	American.....	American....	M.	1
7,623	Plumber's help.	Maine.....	American.....	American....	M.	2
8,152	Coppersmith ..	New Hampshire.	American.....	American....	M.	
8,311	Foreman.....	Massachusetts ..	American.....	American....	M.	
8,447	Boatbuilder....	Ireland	Irish	Irish	S.	
8,680	Knitter.	New Hampshire.	American.....	American....	S.	
8,835	Telegraph op..	Maine.....	Irish	Irish	M.	1
8,982	Plasterer	Massachusetts ..	Canadian.....	Canadian.....	M.	1
9,036	Fireman	Connecticut.....	American.....	American....	M.	2
9,184	Wood finisher.	Massachusetts ..	American.....	American....	M.	
9,356	Basket maker.	Quebec	Canadian.....	Canadian	M.	5
9,455	Cobbler.....	New Hampshire.	American.....	American....	M.	6
9,900	Mechanic.....	New Hampshire.	American.....	American....	M.	
9,915	Mechanic.....	New Hampshire.	American.....	American....	M.	1
10,051	Policeman.....	Canada	Canadian.....	Canadian	M.	

INDIVIDUAL REPORTS.

MISCELLANEOUS.

Showing school conditions, age began work, years in occupation, hours employed weekly, number of days unemployed and cause of non-employment, wage conditions, etc.

No. at school.	Weeks at school.	Dependent in fam.	Age began work.	Yrs. in occupation	With employer.	Hours weekly.	Hours Saturday.	Days unemployed during year.	Cause of non-employment.	Wages per week.	Wages decreased	Weekly reduction.	Wages paid.
..	..	..	17	7	1	78	18	....	.....	$12.00	no	.....	Weekly.
..	..	4	16	1	..	72	12	120	No work.....	10.00	yes	$3.00	Weekly.
..	..	2	14	9	..	..	..	100	No work.....	11.00	no	.....	
..	..	2	40	5	5	72	12	....	.....	9.00	no	.....	Fortnightly.
..	..	3	14	44	..	48	8	70	Sickness	18.00	no	.....	Fortnightly.
..	..	4	12	8	..	60	10	20	.....	9.00	yes	6.00	Weekly.
..	..	2	17	40	40	64	8	150	No work.....	18.00	no	.....	Fortnightly.
..	..	4	20	5	5	60	10	120	Sickness	10.50	no	.....	Monthly.
..	..	..	12	4	3	48	8	....	.....	11.00	no	.....	Fortnightly.
..	..	..	16	2	1	59	9	40	Sickness	9.00	yes	2.50	Fortnightly.
..	..	3	15	40	15	..	..	30	Vacation.....	15.00	no	.....	Fortnightly.
..	..	3	12	3	2	60	10	120	.....	10.50	no	.....	Irregularly.
2	36	4	9	3	2	60	10	....	.....	9.00	no	.....	Weekly.
..	..	8	19	17	..	..	..	12	Vacation.....	20.00	no	.....	
..	..	2	18	13	13	59	9	150	No work.....	9.50	yes	1.00	Monthly.
3	36	8	10	2	1	67	13	12	Sickness	10.00	no	.....	Irregularly.
..	..	2	..	4	4	..	..	100	No work.....	10.00	yes	1.00	Monthly.
..	..	3	..	23	23	60	10	90	No work.....	10.50	yes	1.50	Weekly.
3	36	6	18	5	5	66	16	....	.....	13.50	no	.....	

INDIVIDUAL REPORTS.

MISCELLANEOUS.

TABLE 56 (CONCLUDED).—*Showing individual earnings, income from other sources and total income, living expenses, savings account, home conditions, etc.*

Blank number.	Wages withheld.	No. days' pay.	Individual earnings of self during year.	Income from other sources.	Total income.	Living expenses (single).	Living expenses (with family).	Earn more than family expenses.	Wages of wife or children required.	Savings-bank account.	Saved earnings.	Own a home.	Estimated value of home.	Home incumbered
6,266	....	..	$600	.....	$600	$240	.....	yes	....	yes	yes	no	.....	....
6,304	no	.	320	.....	320	.....	$320	no	....	yes	no	no	.....	....
6,373	....	..	360	.....	360	360	.....	no	....	no	no	no	.....	....
6,400	no	..	464	$300	764	.....	264	yes	no	yes	yes	no	.....	....
7,366	no	..	700	18	718	.....	718	no	....	no	no	yes	$1,100	no
7,623	no	..	450	.....	450	.....	800	no	....	no	no	no	.....	....
8,152	no	..	450	.....	450	.....	720	no	....	yes	no	yes	2,000	no
8,311	no	..	380	349	729	.....	729	no	yes	no	no	yes	2,800	no
8,447	no	..	.....	.....	.....	.....	.....	yes	....	no	yes	no	.....	....
8,680	no	..	400	.....	400	.....	.....	yes	....	no	no	no	.....	....
8,835	no	..	700	300	1,000	.....	800	yes	....	yes	yes	yes	6,000	no
8,982	yes	..	336	.....	336	.....	500	no	....	yes	no	no	.....	....
9,036	no	..	468	.....	468	.....	468	no	....	yes	no	no	.....	....
9,184	yes	10	245	.....	245	.....	.....	yes	no	yes	yes	yes	900	no
9,356	....	..	1,000	.....	1,000	.....	800	yes	no	no	yes	yes	1,000	yes
9,455	....	..	500	.....	500	.....	500	no	....	no	no	no	.....	....
9,900	no	..	330	60	390	.....	390	no	....	no	no	yes	2,000	no
9,915	no	..	388	300	688	.....	.....	....	....	....	....	no	.....	....
10,051	no	..	700	.....	700	.....	700	no	....	no	no	yes	1,000	no

INDIVIDUAL REPORTS.

MISCELLANEOUS.

Showing home conditions, board per week with room, number of fraternal orders connected with, amount yearly dues, weekly benefits, death benefits, trade union, etc.

Ins. against fire.	No. rooms occ'p'd.	Sanitary condition of home.	Occupy tenement.	Monthly rent.	No. rooms occ'p'd.	Sanitary condition of tenement.	Board per week, including room.	Keep account of living expenses.	Take books from public library.	No. fratl orders.	Am't yearly dues, assessments, etc.	Weekly benefits.	Death benefits payable to family.	Belong to trade union.
....	..	.....	no	.....	..	.....	$4.50	yes	yes	2	$12.00	$10.00	$200	no
....	..	.....	yes	$8.00	5	fair	.....	no	no	..	.....	.....	.....	no
....	..	.....	no	.....	..	.....	4.00	yes	yes	2	17.00	.....	1,000	no
....	..	.....	yes	5.00	3	good	.....	yes	no	..	.....	.....	.....	no
yes	7	good	no	.....	..	.....	.....	no	yes	..	.....	.....	.....	no
....	..	.....	no	.....	..	.....	6.00	.....	.....	..	.....	.....	.....	no
yes	8	good	no	.....	..	.....	.....	no	yes	2	30.00	.....	500	no
yes	12	good	no	.....	..	.....	.....	no	yes	4	24.00	27.00	5,100	no
....	..	.....	no	.....	..	.....	4.00	no	yes	..	.....	.....	.....	no
....	..	.....	no	.....	..	.....	2.50	no	yes	1	2.00	.....	.....	no
yes	10	good	no	.....	..	.....	.....	no	yes	1	.....	.....	.....	no
....	..	.....	yes	7.00	4	fair	.....	no	no	..	.....	.....	.....	no
....	..	.....	yes	10.00	7	good	.....	no	yes	1	.....	.....	.....	no
yes	6	good	no	.....	..	.....	.....	no	no	..	.....	.....	.....	no
yes	4	good	no	.....	..	.....	.....	yes	no	..	.....	.....	.....	no
....	..	.....	yes	6.00	5	good	.....	no	yes	..	.....	.....	.....	no
yes	7	good	no	.....	..	.....	.....	no	yes	..	.....	.....	.....	no
....	..	.....	yes	14.50	6	good	.....	no	no	2	25.00	.....	2,000	no
yes	6	good	no	.....	..	.....	.....	no	no	1	3.00	3.00	.....	no

STATISTICAL SUMMARY.

TABLE 57.—*Showing birthplace by states and countries, by trades.*

No. considered.	CLASSIFICATION.	BIRTHPLACE.																	
		New Hamp.	Maine.	Vermont.	Massachusetts.	Rhode Island.	Connecticut.	Other states.	Belgium.	Canada.	England.	France.	Germany.	Ireland.	Norway.	Russia.	Scotland.	Sweden.	Switzerland.
5	Bakers	1	..	..	..	..	..	1	..	..	..	..	..	2	..	..	1	..	..
12	Barbers	10	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..
17	Blacksmiths	6	1	1	1	..	..	1	..	4	..	1	..	1	..	..	1	..	..
4	Bookbinders	..	..	..	1	..	..	..	..	1	..	..	..	1	..	..	1	..	..
15	Bookkeepers	7	1	..	4	..	..	1	..	2	..	..	..	..	..	..	..	..	..
13	Box makers	4	1	3	2	..	..	1	..	1	..	..	..	..	..	..	..	1	..
6	Brass workers	3	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
24	Cabinet makers	13	..	2	5	..	..	2	..	..	1	..	..	1	..	..	..	..	..
17	Carpenters	12	3	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..
14	Carriage workers	5	3	1	2	..	1	..	..	2	..	..	..	..	..	..	..	..	..
15	Cigar makers	3	..	..	..	..	2	3	..	2	..	..	2	1	..	1	1	..	..
52	Clerks	30	4	3	3	..	..	6	..	3	..	..	..	2	..	..	1	..	..
16	Coopers	5	..	2	3	..	1	1	..	3	..	..	1	..	..	..	..	..	..
13	Cutlers	8	2	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	1
17	Engineers (stationary)	9	3	1	2	..	..	2	..	..	..	..	..	..	..	..	..	..	..
8	Harness makers	5	..	1	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..
10	Laborers	4	..	1	..	..	..	..	..	2	..	..	..	3	..	..	..	..	..
67	Machinists	35	2	3	12	..	..	3	..	..	3	..	1	4	1	..	3	..	..
25	Molders (iron)	14	1	1	3	..	..	1	..	..	..	..	..	5	..	..	..	..	..
5	Needle makers	2	..	..	..	..	..	1	..	2	..	..	..	..	..	..	..	..	..
7	Pattern makers	4	1	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
39	Printers	23	2	2	4	..	..	4	..	2	1	..	..	..	..	..	..	1	..
74	Railroading	45	3	6	9	..	..	4	..	3	..	..	..	3	..	..	..	1	..
10	Salesmen	5	1	..	2	..	..	..	..	1	..	1	..	..	..	..	..	..	..
22	Sash and blind makers	11	2	3	3	..	..	2	..	1	..	..	..	..	..	..	..	..	..
115	Shoe workers	66	16	3	13	..	..	6	..	7	..	..	..	2	..	..	1	1	..
6	Stone workers	2	2	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..
4	Tailors	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
7	Tanners	4	..	1	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..
4	Upholsterers	2	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..
14	Wood workers	10	..	1	1	..	..	2	..	..	..	..	..	..	..	..	..	..	..
54	Miscellaneous	22	5	2	5	..	2	5	..	6	..	..	1	6	..	..	..	..	..
711		373	56	38	77	..	6	49	1	43	7	2	5	37	1	1	10	4	1

STATISTICAL SUMMARY.

TABLE 58.—*Nationality of parents.*

No. considered.	CLASSIFICATION.	FATHER.								MOTHER.								
		American.	Canadian.	English.	French.	German.	Irish.	Scotch.	Swede.	American.	Canadian.	English.	French.	German.	Irish.	Russian.	Scotch.	Swede.
5	Bakers	1	..	..	..	..	3	1	..	1	..	..	..	..	3	..	1	..
12	Barbers	9	..	..	..	1	2	..	..	8	..	1	..	..	2	1	..	..
17	Blacksmiths	10	2	..	1	..	2	2	..	10	2	..	1	..	2	..	2	..
4	Bookbinders	..	..	1	..	1	1	1	..	..	..	..	..	2	1	..	1	..
15	Bookkeepers	13	1	..	1	..	..	..	..	13	1	..	1	..	..	..	..	..
13	Box makers	10	1	..	..	..	..	1	1	8	3	..	..	..	1	..	..	1
6	Brass workers	5	..	..	..	..	1	..	..	5	..	..	..	..	1	..	..	..
24	Cabinet makers	19	..	2	2	..	1	..	..	19	..	1	1	1	2	..	..	..
17	Carpenters	15	1	..	..	..	1	..	..	15	..	1	..	..	1	..	..	..
14	Carriage workers	12	2	..	..	..	..	..	..	11	2	1	..	..	..	..	..	..
15	Cigar makers	4	2	..	..	3	4	*2	..	5	2	..	..	3	3	1	1	..
52	Clerks	43	3	2	..	..	3	1	..	44	2	2	..	..	3	..	1	..
16	Coopers	12	3	..	..	1	..	..	..	12	3	..	..	1	..	..	..	..
13	Cutlers	11	1	..	..	..	..	..	1	10	1	1	..	..	..	..	..	1
17	Engineers (stationary)	17	..	..	..	..	..	..	..	17	..	..	..	..	..	..	..	..
8	Harness makers	3	..	..	..	1	4	..	..	3	..	..	..	1	4	..	..	..
10	Laborers	3	2	..	..	..	5	..	..	3	3	..	..	..	4	..	..	..
67	Machinists	47	..	2	..	2	13	†1	2	47	..	3	..	2	11	†1	3	..
25	Molders (iron)	8	..	..	..	1	14	..	2	9	..	1	..	..	14	..	1	..
5	Needle workers	3	2	..	..	..	..	..	..	4	..	..	1	..	..	..	..	..
7	Pattern makers	7	..	..	..	..	..	..	..	6	..	..	..	1	..	..	..	..
39	Printers	32	..	1	..	..	4	1	1	31	1	5	..	..	1	..	1	..
74	Railroading	62	3	2	1	..	5	..	1	64	3	..	..	..	5	..	1	1
10	Salesmen	6	..	..	1	..	3	..	..	6	..	..	2	..	2	..	..	..
22	Sash and blind makers	21	1	..	..	..	..	..	..	20	1	1	..	..	..	..	..	..
115	Shoe workers	85	10	2	1	..	13	2	2	87	9	4	..	..	13	..	1	1
6	Stone workers	3	..	..	..	..	3	..	..	3	..	..	..	..	3	..	..	..
4	Tailors	3	..	..	..	..	..	1	..	3	..	..	..	..	..	..	1	..
7	Tanners	4	..	1	1	..	1	..	..	4	..	1	1	..	1	..	..	..
4	Upholsterers	1	..	1	..	..	2	..	..	1	..	1	..	..	2	..	..	..
14	Wood workers	13	..	..	..	..	1	..	..	13	..	..	..	..	1	..	..	..
54	Miscellaneous	32	6	2	1	1	12	..	..	32	6	1	2	1	10	..	2	..
711		514	40	16	9	11	98	13	10	514	39	24	9	12	90	3	16	4

* One Russian. † Norwegian.

STATISTICAL SUMMARY.

TABLE 59.—*Conjugal condition and number children per family.*

No. considered.	Classification.	Conjugal condition.			Number of Families with											
		Married.	Single.	Widower.	1 child.	2 children.	3 children.	4 children.	5 children.	6 children.	7 children.	8 children.	9 children.	10 children.	11 children.	12 children.	No children.
5	Bakers	4	1	....	....	1	1	2	..	..	..	..	..	..	..	..	....
12	Barbers	9	3	....	....	1	..	2	..	..	..	..	..	..	..	..	6
17	Blacksmiths	13	3	1	5	5	..	..	..	..	..	..	..	..	..	..	3
4	Bookbinders	2	2	....	....	1	..	..	..	..	1	..	..	..	..	..	....
15	Bookkeepers	9	6	....	1	3	1	1	..	..	..	..	..	..	..	..	3
13	Boxmakers	11	2	....	1	1	1	..	1	..	..	..	..	..	..	..	7
6	Brass workers	5	1	....	2	..	1	..	..	..	..	..	..	..	..	..	2
24	Cabinet makers	21	2	1	9	2	2	1	1	..	..	1	..	..	..	..	5
17	Carpenters	11	6	....	4	2	3	1	..	..	..	..	..	..	..	..	1
14	Carriage workers	11	2	1	1	3	1	..	..	..	..	..	..	..	..	..	6
15	Cigar makers	9	6	....	5	1	2	1	..	..	..	..	..	..	..	..	....
52	Clerks	31	20	1	10	4	4	1	1	..	..	..	..	..	..	..	11
16	Coopers	12	4	....	1	5	..	2	..	..	..	..	..	1	..	1	2
13	Cutlers	8	5	....	2	1	1	1	1	1	..	..	..	..	..	..	1
17	Engineers (stationary)	15	2	....	1	3	4	..	..	..	..	..	..	..	..	..	7
8	Harness workers	5	3	....	1	..	2	..	..	..	..	..	..	..	..	..	2
10	Laborers	7	2	1	1	1	2	..	..	1	..	..	..	..	..	..	2
67	Machinists	54	9	4	15	8	3	4	1	..	3	..	..	..	..	..	20
25	Molders (iron)	16	7	2	3	1	4	2	1	1	..	..	..	..	..	..	4
5	Needle workers	4	....	1	3	1	..	..	..	..	..	..	..	..	..	..	....
7	Pattern makers	7	....	....	1	..	1	..	..	..	..	..	..	..	..	..	5
39	Printers	20	19	....	4	2	3	..	..	..	..	..	..	..	..	..	11
74	Railroading	62	10	2	18	8	6	1	..	1	1	..	..	..	..	..	27
10	Salesmen	6	4	....	3	1	..	..	1	..	..	..	..	..	..	..	1
22	Sash and blind makers	19	2	1	3	3	2	1	1	..	..	..	..	..	..	..	9
115	Shoe workers	80	32	3	28	18	3	5	..	1	..	..	..	..	..	..	25
6	Stone workers	4	1	1	....	4	..	..	..	..	..	..	..	..	..	..	....
4	Tailors	3	1	....	1	1	..	..	..	..	..	..	..	..	..	..	1
7	Tanners	4	3	....	2	..	1	..	1	..	..	..	..	..	..	..	....
4	Upholsterers	3	1	....	....	1	1	..	..	..	..	..	..	..	..	..	1
14	Wood workers	11	3	....	2	2	..	..	1	..	..	..	..	..	..	..	6
54	Miscellaneous	37	17	....	12	7	2	4	2	1	..	..	..	..	..	..	9
711		513	179	19	139	91	51	29	12	6	5	1	..	1	..	1	177

STATISTICAL SUMMARY.

TABLE 60.—*Number of children at school and weeks attendance.*

No. considered.	CLASSIFICATION.	Number of families sending to school							*Number of children attending school									
		1 child.	2 children.	3 children.	4 children.	5 children.	6 children.	12 to 16 weeks.	16 to 20 weeks.	20 to 22 weeks.	22 to 24 weeks.	24 to 26 weeks.	26 to 28 weeks.	28 to 30 weeks.	30 to 32 weeks.	32 to 34 weeks.	34 to 36 weeks.	Over 36 weeks.
5	Bakers	1	..	1	..	..	..	..	3	..	..	..	..	..	..	..	..	....
12	Barbers	1	2	..	..	..	..	1	..	..	..	4	..	..	..	..	..	....
17	Blacksmiths	4	1	..	..	..	..	..	..	..	..	..	..	..	..	..	4	....
4	Bookbinders	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	....	5
15	Bookkeepers	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	....
13	Box makers	2	..	..	1	..	..	..	..	..	..	..	..	..	..	..	6	....
6	Brass workers	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
24	Cabinet makers	10	2	..	..	1	..	..	..	..	..	..	..	3	..	..	6	2
17	Carpenters	4	1	1	..	..	..	..	..	..	1	..	..	..	..	..	3	5
14	Carriage workers	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
15	Cigar makers	2	1	1	..	..	..	..	..	..	..	..	..	..	..	..	5	....
52	Clerks	8	5	1	2	..	..	..	..	..	..	..	2	1	..	..	14	4
16	Coopers	3	..	2	..	1	1	..	..	..	..	..	..	9	..	2	3	6
13	Cutlers	2	3	..	1	..	..	..	..	..	..	..	8	..	..	..	2	....
17	Engineers (stationary)	1	3	1	..	..	..	..	..	..	2	..	..	..	..	..	6	....
8	Harness makers	1	..	3	..	..	..	..	..	..	..	..	..	..	..	..	4	....
10	Laborers	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	5	1
67	Machinists	8	6	2	3	5	..	..	1	..	2	..	..	2	..	..	21	5
25	Molders (iron)	5	3	1	1	..	..	..	..	1	1	..	..	..	..	3	13	....
5	Needle workers	3	1	..	..	..	..	1	..	..	..	..	..	..	..	..	....	3
7	Pattern makers	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	....	4
39	Printers	3	2	..	..	..	..	1	..	..	..	..	..	..	..	..	4	2
74	Railroading	12	4	3	..	1	..	..	..	..	..	3	..	3	1	7	18	....
10	Salesmen	2	..	..	1	..	..	..	..	..	..	..	..	..	..	..	6	....
22	Sash and blind makers	3	2	1	..	1	..	..	..	2	..	..	..	..	7	..	3	....
115	Shoe workers	19	6	4	..	..	..	..	..	..	..	2	..	2	..	3	28	3
6	Stone workers	2	2	..	..	..	..	1	..	..	..	..	..	..	..	..	5	....
4	Tailors	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	....
7	Tanners	3	1	..	..	..	..	..	..	..	..	..	..	..	..	..	4	1
4	Upholsterers	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	....
14	Wood workers	2	..	1	..	..	..	..	..	..	..	..	..	1	..	..	4	....
54	Miscellaneous	6	4	3	..	..	..	..	..	..	..	1	..	4	3	..	13	2
711		120	51	26	9	9	2	4	1	6	6	10	10	25	11	15	183	45

* Number of families not reporting weeks at school, 26.

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TABLE 61.—*Dependent in family for support, and age began work.*

Dependent for support.								Number began work at age of																		
2 in family.	3 in family.	4 in family.	5 in family.	6 in family.	7 in family.	8 in family.	Over 8.	Not reporting.	5 years.	6 years.	7 years.	8 years.	9 years.	10 years.	11 years.	12 years.	13 years.	14 years.	15 years.	16 years.	17 years.	18 years.	19 years.	20 years.	21 upwards.	Not reporting.
....	....	1	1	2	....	....	....	1	..	..	..	..	1	..	..	1	..	1	..	1	..	1	..	..	..	..
3	....	2	....	2	....	....	....	5	1	1	1	1	..	..	..	1	..	..	3	2	..	1	..	..	..	1
4	5	5	....	....	....	....	....	3	..	..	..	..	..	2	1	2	2	3	1	1	1	..	..	2	..	2
....	....	....	....	....	1	....	*1	2	..	..	..	..	..	1	..	..	2	1	..	..	..	..	..	..	..	..
3	2	2	2	1	....	....	....	5	..	..	..	..	..	..	..	..	..	..	1	2	2	1	3	..	2	1
6	2	1	1	1	....	....	....	2	..	..	..	1	..	3	..	1	2	2	1	..	..	1	..	..	1	1
3	2	....	1	....	....	....	....	..	..	..	..	..	..	1	..	2	..	..	1	1	..	..	1	..	..	..
4	9	4	1	2	....	1	....	3	1	..	..	2	3	1	..	3	1	1	4	3	..	..	..	1	..	4
1	4	3	2	1	....	....	....	6	..	..	1	..	1	2	..	1	1	2	1	1	4	..	1	..	1	1
7	1	3	....	1	....	....	....	2	..	..	..	..	..	..	..	1	2	2	3	2	2	1	..	1	..	..
1	5	1	1	2	....	....	....	5	..	..	..	1	..	2	..	2	1	..	2	3	1	1	..	1	1	..
10	12	3	4	1	1	....	....	21	1	2	..	1	1	1	1	7	1	5	5	7	5	6	2	1	2	4
1	2	4	1	2	....	....	†2	4	..	1	..	1	..	1	..	4	1	2	2	..	2	..	..	2	..	..
2	3	1	1	1	2	....	....	3	..	..	..	1	..	..	..	..	..	4	3	..	..	1	..	..	1	3
6	2	4	3	..	....	....	....	2	..	..	..	..	..	..	..	2	2	2	1	5	2	2	..	1	..	..
2	2	....	2	....	....	....	....	2	..	..	..	..	1	..	..	..	1	1	..	1	2	2	..	..	..	..
2	1	1	1	1	....	....	‡1	3	..	..	..	..	..	3	..	..	1	2	1	..	2	..	..	..	..	1
17	22	11	3	3	2	1	‖2	6	2	1	..	2	1	2	..	8	5	8	9	11	3	8	..	..	3	4
8	2	2	3	3	2	....	....	5	..	..	1	..	2	2	1	2	2	2	3	3	3	3	..	..	1	..
2	1	2	....	....	....	....	....	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	3
2	4	....	1	....	....	....	....	..	..	..	..	1	..	..	..	1	..	1	..	2	..	..	..	..	1	1
11	4	3	2	1	1	....	....	17	..	..	..	..	1	2	1	..	1	4	7	7	4	2	5	..	2	3
28	18	10	6	2	....	1	§1	8	..	..	..	..	2	2	3	11	3	6	7	15	4	8	3	2	5	3
1	2	1	1	....	1	....	....	4	..	..	..	..	..	..	..	..	1	..	3	2	..	1	1	2	..	..
8	3	4	1	2	1	....	....	3	..	..	..	..	1	1	..	..	3	1	..	3	3	3	2	1	..	2	2
23	30	18	6	5	1	1	....	31	..	..	..	1	1	7	5	7	6	15	24	13	10	17	2	1	3	3
1	1	2	1	....	....	....	....	1	..	..	..	..	1	..	..	..	..	..	1	1	1	1	..	..	..	1
1	....	2	....	....	....	....	....	1	..	..	1	..	..	..	..	..	..	1	..	1	..	1	..	..	..	..
....	3	....	1	....	1	....	....	2	1	..	..	..	..	1	..	..	..	2	..	1	..	..	..	..	..	2
1	....	1	1	....	....	....	....	1	..	..	1	..	..	..	..	..	2	..	1	..	..	..	..	..	..	..
6	3	2	....	....	....	1	....	2	..	..	..	..	..	1	..	..	1	2	1	4	..	1	..	2	..	2
9	12	9	1	3	3	2	....	15	..	..	..	1	2	3	..	6	1	7	4	7	5	5	2	1	4	6
173	157	102	48	36	16	7	7	165	6	5	5	14	18	37	12	65	40	77	92	99	57	68	21	18	29	48

* Nine in family. † One, ten in family; one, twelve in family. ‡ Nine in family.
‖ Nine each in family. § Nine in family.

STATISTICAL SUMMARY.

TABLE 62.—*Years engaged in occupation, by trades.*

No. considered.	CLASSIFICATION.	WORKED AT OCCUPATION															
		1 year.	2 years.	3 years.	4 years.	5 years.	6 years.	7 years.	8 years.	9 years.	10 years.	11 years.	12 years.	13 years.	14 years.	15 years.	16 years.	17 years.
5	Bakers	..	..	..	..	..	..	..	1	..	..	..	..	..	2	..	..	..
12	Barbers	..	..	..	1	1	..	1	3	2	..	..	..	1	..	..	1	..
17	Blacksmiths	..	..	..	1	..	..	..	3	1	1	..	2	..	1	1	..	..
4	Bookbinders	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
15	Bookkeepers	..	1	2	2	3	..	..	1	..	..	..	1	..	..	1	..	..
13	Box makers	1	2	2	1	..	..	1	..	1	2	..	2	..	..	..	..	..
6	Brass workers	..	1	..	..	1	1	1	1	..	..	..	..	..	..	..	..	..
24	Cabinet makers	..	..	..	1	..	3	2	1	..	1	1	1	1	1	1	..	..
17	Carpenters	..	1	5	1	..	..	1	..	1	..	2	1	..	..	1	..	..
14	Carriage workers	..	..	..	1	..	..	..	1	..	..	..	..	2	..	..	..	1
15	Cigar makers	..	2	..	..	..	1	..	1	1	..	1	..	..	1	3	..	..
52	Clerks	4	6	1	9	6	1	2	1	2	5	1	4	2	1	1	..	..
16	Coopers	..	..	2	..	..	..	..	1	..	..	..	..	3	2	..	1	..
13	Cutlers	..	..	1	1	2	1	1	1	2	..	..	..	..	..	..	..	2
17	Engineers (stationary)	..	1	1	2	2	..	..	..	..	2	..	..	..	..	..	..	1
8	Harness makers	2	..	..	1	..	..	..	..	1	..	..	..	..	1	1	..	1
10	Laborers	1	1	..	..	..	2	..	..	1	..	..	..	1	..	..	..	..
67	Machinists	2	4	4	3	..	3	1	2	2	2	1	2	3	2	2	2	..
25	Molders (iron)	..	3	..	..	..	..	2	1	..	4	..	1	2	..	2	..	..
5	Needle workers	..	..	..	..	..	..	..	..	..	..	..	..	2	..	1	..	1
7	Pattern makers	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..
39	Printers	..	3	4	2	1	1	2	1	1	4	1	2	..	3	..	2	..
74	Railroading	5	3	2	5	5	3	3	1	2	7	5	2	3	4	..	1	..
10	Salesmen	2	1	1	..	..	2	1	1	..	..	..	..	..	..	..	..	..
22	Sash and blind workers	..	1	2	..	1	1	..	2	1	1	..	3	1	1	..	1	..
115	Shoe workers	4	7	9	10	4	7	7	5	5	11	2	6	3	2	6	4	..
6	Stone workers	1	..	2	..	..	1	..	..	..	..	..	..	..	..	..	..	..
4	Tailors	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	1
7	Tanners	1	1	..	..	..	..	..	1	1	..	..	..	..	..	..	..	1
4	Upholsterers	..	..	..	..	1	..	1	1	..	..	..	..	..	..	..	..	..
14	Wood workers	3	..	..	2	1	2	..	..	1	1	..	..	..	..	1	..	..
54	Miscellaneous	7	4	4	4	8	1	1	2	2	1	1	..	1	..	..	1	2
711		33	42	43	47	36	31	27	32	27	43	15	27	25	22	22	13	10

STATISTICAL SUMMARY.

TABLE 62 (CONCLUDED).—*Years engaged in occupations, by trades.*

WORKED AT OCCUPATION

18 years.	19 years.	20 years.	21 years.	22 years.	23 years.	24 years.	25 years.	26 years.	27 years.	28 years.	29 years.	30 years.	31 years.	32 years.	33 years.	34 years.	35 years.	36 years.	37 years.	38 years.	39 years.	40 years.	41 years.	42 years.	43 years.	44 years.	45 years.	46 years.	47 years.	48 years.	50 years.	52 years.	Not reporting.
..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	1	..	..	..	..	2	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
..	..	1	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1
..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
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..	..	1	..	..	1	2	..	1	1	1	1	2	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1
..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	1	..	..	..	..	1	..	1	..	1	1	..	1	..	..	..	..	1	..
..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
2	..	1	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
1	..	1	1	..	..	..	1	..	..	..	..	1	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	..	3	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
..	..	2	2	..	..	1	4	2	2	1	1	3	..	1	..	..	3	..	..	1	..	4	..	..	1	..	..	..	..	..	1	..	3
..	..	2	..	..	..	..	..	1	1	..	..	3	..	..	..	..	1	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..
1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	1
..	..	3	1	..	..	1	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	1	..	..	..	1	..	1
3	..	4	..	..	..	..	2	1	1	..	1	3	..	..	..	..	1	1	..	1	..	1	..	..	..	..	..	..	..	..	1	..	3
..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	1	..	..	..	..	3	..	..	..	..	2	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
4	..	3	..	1	..	..	2	..	..	1	..	3	..	..	..	1	..	..	1	..	1	..	3	..	..	1	..	..	..	..	..	..	3
..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
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..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	1	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	3	..	2	1	..	3	..	..	..	..	1	..	..	..	..	..	..	..	..	..	2	..	1	..	1	..	..	..	..	..	..	1
13	..	32	8	6	4	4	26	7	6	6	4	22	..	2	3	2	7	3	..	6	..	14	..	3	5	2	4	..	..	..	3	2	22

STATISTICAL SUMMARY.

TABLE 63.—*Years engaged with present employer.*

No. considered.	Occupation.	Worked with Present Employer															
		1 year.	2 years.	3 years.	4 years.	5 years.	6 years.	7 years.	8 years.	9 years.	10 years.	11 years.	12 years.	13 years.	14 years.	15 years.	16 years.
5	Bakers	1	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..
12	Barbers	..	2	2	..	..	..	..	1	1	..	..	..	..	..	..	1
17	Blacksmiths	3	1	1	1	..	1	..	..	..	1	..	1	..	..	..	..
4	Bookbinders	2	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..
15	Bookkeepers	2	5	2	1	1	..	1	..	2	..	..	..	..	..	..	..
13	Box makers	3	2	2	1	1	..	1	..	..	2	1	..	..	..	..	..
6	Brass workers	1	1	..	2	1	1	..	..	..	..	..	..	..	..	..	..
24	Cabinet makers	2	..	2	1	1	1	4	..	..	1	1	1	2	1	1	..
17	Carpenters	5	4	3	1	..	..	..	..	..	..	1	1	..	..	..	..
14	Carriage workers	..	..	..	1	..	..	..	1	..	..	..	..	1	..	1	..
15	Cigar makers	2	4	2	..	2	2	..	..	..	..	..	..	1	..	..	..
52	Clerks	11	7	3	6	5	1	4	1	..	3	1	3	2	1	..	..
16	Coopers	2	1	1	1	..	..	..	1	..	..	..	1	3	1	1	1
13	Cutlers	..	..	2	1	1	..	3	2	1	1	..	..	..	..	1	..
17	Engineers (stationary)	3	4	1	1	2	..	1	..	..	..	1	1	..	..	..	..
8	Harness makers	3	..	..	1	1	1	..	1	..	..	..	..	..	1	..	..
10	Laborers	2	1	1	..	..	1	..	..	1	..	..	..	1	..	..	..
67	Machinists	7	11	4	4	2	5	3	2	3	..	2	3	1	1	1	..
25	Molders (iron)	1	5	1	2	1	2	..	2	1	1	2	1	1	..	..	..
5	Needle makers	..	2	..	..	..	..	..	..	..	..	..	..	1	..	..	..
7	Pattern makers	..	..	..	1	..	1	..	..	..	..	..	..	..	1	..	1
39	Printers	8	5	8	4	2	1	1	3	..	..	..	..	..	1	1	..
74	Railroading	8	9	9	10	7	2	3	2	3	6	1	..	1	..	..	1
10	Salesmen	6	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..
22	Sash and blind makers	2	2	1	..	2	2	1	2	1	1	..	2	1	..	..	..
115	Shoe workers	15	22	14	15	4	7	11	1	2	2	..	4	1	2	3	..
6	Stone workers	1	2	2	..	1	..	..	..	..	..	..	..	..	..	..	..
4	Tailors	..	..	1	1	..	..	..	..	..	..	1	..	..	..	..	..
7	Tanners	1	1	..	..	..	..	..	2	1	..	..	..	..	..	..	..
4	Upholsterers	2	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..
14	Wood workers	4	2	..	..	3	..	..	..	1	1	..	..	2	..	..	..
54	Miscellaneous	14	5	8	2	7	1	..	2	..	1	..	..	1	1	1	..
711		111	99	76	57	44	29	33	23	17	20	11	19	19	10	10	4

STATISTICAL SUMMARY.

TABLE 63 (CONCLUDED).—*Years engaged with present employer.*

WORKED WITH PRESENT EMPLOYER

17 years.	18 years.	19 years.	20 years.	21 years.	22 years.	23 years.	24 years.	25 years.	26 years.	27 years.	28 years.	29 years.	30 years.	31 years.	32 years.	33 years.	34 years.	35 years.	36 years.	37 years.	38 years.	39 years.	40 years.	41 years.	42 years.	43 years.	44 years.	45 years.	46 years.	47 years.	48 years.	Over 48 yrs.	Not reporting.
..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4
..	..	..	1	..	..	..	..	1	..	1	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
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1	..	..	..	1	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1	..	1	..	..	..	..	2
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
1	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..
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..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
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1	1	..	4	..	..	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	7
..	..	..	..	..	..	..	..	1	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
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..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4
1	..	..	1	..	1	1	1	2	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3
..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2	1	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	2	..	..	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	1	..	..	..	..	4
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	7
9	6	..	10	2	2	7	6	10	3	4	2	..	2	..	..	1	1	1	1	..	2	..	4	1	1	2	..	2	..	..	..	..	50

STATISTICAL SUMMARY.

TABLE 64.—*Number of hours employed weekly.*

No. considered.	CLASSIFICATION.	Employed weekly																			
		36 hours.	40 hours.	41 hours.	42 hours.	43 hours.	44 hours.	45 hours.	46 hours.	47 hours.	48 hours.	49 hours.	50 hours.	51 hours.	52 hours.	53 hours.	54 hours.	55 hours.	56 hours.
5	Bakers	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.
12	Barbers	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
17	Blacksmiths	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4	Bookbinders	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
15	Bookkeepers	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
13	Box makers	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
6	Brass workers	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.
24	Cabinet makers	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	2	..
17	Carpenters	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..
14	Carriage workers	..	..	..	..	..	..	..	..	..	2	..	2	..	..	..	..	..	..
15	Cigar makers	..	..	..	..	..	..	..	..	2	12	..	..	..	..	..	..	..	..
52	Clerks	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	1	..	1
16	Coopers	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
13	Cutlers	..	..	..	..	..	..	5	..	..	..	..	2	..	..	..	1	..	..
17	Engineers (stationary)	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	2	..	..
8	Harness makers	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	.
10	Laborers	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
67	Machinists	..	1	..	..	..	1	4	..	1	1	..	1	..	..	..	..	3	..
25	Molders (iron)	..	..	..	..	..	..	..	..	..	1	..	1	..	1	..	2	..	1
5	Needle makers	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
7	Pattern makers	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
39	Printers	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
74	Railroading	1	..	..	..	..	7	2	..	3	3	..	2	..	3	..	3	1	..
10	Salesmen	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	1	1
22	Sash and blind makers	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..
115	Shoe workers	1	..	..	..	..	..	1	..	1	3	2	5	..	1	1	2	2	1
6	Stone workers	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	1	..	..
4	Tailors	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7	Tanners	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4	Upholsterers	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
14	Wood workers	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	1	..
54	Miscellaneous	1	..	..	..	..	..	..	..	..	3	..	..	..	1	2	1	..	..
711		5	3	..	..	..	8	15	..	7	29	3	15	..	6	6	19	13	5

STATISTICAL SUMMARY.

TABLE 64 (CONCLUDED).—*Hours employed weekly, hours employed Saturdays.*

Employed weekly																Employed Saturdays														
57 hours.	58 hours.	59 hours.	60 hours.	62 hours.	64 hours.	66 hours.	68 hours.	70 hours.	72 hours.	74 hours.	76 hours.	78 hours.	80 hours.	Over 80 hours.	Not reporting.	4 hours.	5 hours.	6 hours.	7 hours.	8 hours.	9 hours.	10 hours.	11 hours.	12 hours.	13 hours.	14 hours.	15 hours.	16 hours.	Over 16 hours.	Not reporting.
..	..	....	3	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	3	..	1	..	..	1	..	..	..
..	..	....	2	..	..	..	..	1	1	1	3	..	1	..	3	..	..	..	..	..	..	1	..	..	..	1	2	4	[6]1	3
2	..	....	11	..	1	..	..	..	..	..	..	..	..	..	2	..	..	..	..	1	2	10	..	..	..	..	1	..	..	3
1	..	3	....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	3	....	..	..	..	..	..	..	..	..
..	..	1	6	..	2	1	..	..	..	..	..	..	..	..	3	..	..	..	..	..	2	4	1	2	1	..	2	..	..	3
..	..	2	10	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	2	9	..	..	..	..	..	..	..	..
..	..	5	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	1	..	..	..	..	..	..	..	..
1	1	9	9	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	2	10	8	..	..	..	..	..	..	..	2
..	..	....	15	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	14	..	..	..	..	..	..	..	..
..	..	1	7	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	2	1	7	..	..	..	..	..	..	..	4
..	..	....	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	12	....	1	..	..	..	..	..	..	..	..
..	1	....	4	5	5	3	5	3	3	4	2	1	2	[9]9	1	..	..	..	..	3	2	3	2	10	5	12	7	4	[7]3	1
..	1	2	12	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	2	12	..	..	..	1	..	..	..	..	..
..	..	3	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	4	1	..	..	..	..	..	..	..	8
..	..	2	7	..	..	2	..	..	2	..	..	..	..	..	1	..	..	4	..	..	4	4	2	1	..	..	..	..	..	2
..	..	1	5	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	2	4	..	..	..	..	..	..	..	1
..	..	2	6	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	2	6	1	..	..	..	..	..	..	1
1	3	12	30	..	..	..	..	..	1	..	..	..	1	..	7	..	8	1	2	16	16	13	..	1	..	..	..	..	..	10
..	..	4	14	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	3	7	13	..	..	..	..	..	..	..	1
..	..	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	2	2	..	..	..	..	..	..	..	..
..	..	2	2	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	2	1	..	..	..	..	..	..	..	3
1	..	20	13	..	..	..	..	..	..	..	..	..	..	..	2	..	2	1	..	..	21	13	..	..	..	..	..	..	..	2
..	1	6	19	..	1	3	..	..	8	2	..	1	..	[2]1	7	7	1	1	5	6	9	19	3	9	2	2	1	..	..	9
..	..	2	....	..	..	..	1	..	..	1	..	..	..	[3]1	1	..	1	..	..	1	1	....	..	2	..	2	..	1	..	2
..	..	12	8	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	13	6	..	..	..	..	..	..	..	1
1	5	51	28	..	..	1	..	..	..	..	..	1	..	..	8	..	4	1	7	12	52	28	..	..	1	..	1	..	..	9
..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	2	1	..	..	..	..	..	..	..	..
..	..	....	1	..	..	1	..	..	1	..	..	..	..	..	1	..	..	..	..	..	....	1	..	..	1	1	..	..	..	1
..	..	1	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	6	..	..	..	..	..	..	..	..
..	..	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	..	..	..	..	..	..	..
..	..	2	6	..	1	..	..	..	..	..	..	..	..	[4]1	1	..	1	..	..	..	4	6	..	..	..	..	1	..	..	2
3	1	7	17	..	1	3	1	..	3	..	..	2	1	[5]1	6	..	..	1	5	8	10	11	2	4	1	..	3	1	[8]1	7
10	13	155	249	5	11	14	7	5	20	8	5	6	5	13	51	7	23	11	23	72	185	210	11	30	11	19	19	10	5	75

[1] Three clerks work 82 hours weekly; one, 84 hours; one, 86 hours; three, 96 hours; one, 98 hours. [2] 84 hours; [3] 86 hours; [4] 90 hours; [5] 90 hours.
[6] 17 hours; [7] one 17, two 18 hours; [8] 18 hours.

STATISTICAL SUMMARY.

TABLE 65.—*Showing number of days unemployed during year.*

No. considered.	CLASSIFICATION.	Unemployed during year																		
		3 days.	4 days.	5 days.	1 week.	2 weeks.	3 weeks.	4 weeks.	5 weeks.	6 weeks.	7 weeks.	8 weeks.	9 weeks.	10 weeks.	11 weeks.	12 weeks.	13 weeks.	14 weeks.	15 weeks.	16 weeks.
5	Bakers	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
12	Barbers	..	1	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	1	1
17	Blacksmiths	..	..	..	4	1	..	..	..	..	1	1	..	1	..	..	1	..	..	..
4	Bookbinders	..	..	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..
15	Bookkeepers	..	..	..	..	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..
13	Box makers	..	..	..	..	2	..	..	..	1	..	..	1	2	..	..	..	..	..	..
6	Brass workers	..	..	..	1	1	..	1	..	..	..	1	..	1	..	..	..	..	..	..
24	Cabinet makers	..	1	..	..	..	1	..	..	..	2	4	..	6	..	..	..	..	..	..
17	Carpenters	..	..	..	..	2	..	..	3	..	..	1	1	1	..	..	..	..	1	..
14	Carriage workers	..	..	1	1	1	2	..	1	..	..	..	1	1	..	..	..	..	..	..
15	Cigar makers	..	..	1	..	..	..	..	1	..	1	1	..	..	..	..	..	..	..	1
52	Clerks	..	..	1	2	8	3	2	4	..	1	1	1	1	1	..	..	..	..	..
16	Coopers	1	..	..	..	2	1	1	2	1	1	..	..	..	..	..	..	..	..	..
13	Cutters	..	..	..	..	1	2	..	..	..	..	1	..	..	..	2	..	1	..	..
17	Engineers (stationary)	..	..	..	1	..	1	..	2	1	..	..	..	..	..	..	..	1	..	..
8	Harness makers	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	1	1
10	Laborers	..	..	..	..	..	1	..	2	..	..	1	..	1	..	..	..	..	..	..
67	Machinists	..	..	..	2	7	3	2	3	1	3	6	1	3	1	2	2	..	2	..
25	Molders (iron)	..	..	..	1	1	2	1	..	1	3	..	..	2	1	1	..	..	2	..
5	Needle makers	..	..	..	..	..	..	..	..	1	..	..	..	1	1	..	..	..	..	..
7	Pattern makers	..	..	..	..	..	..	..	1	..	..	..	..	..	..	2	..	..	..	..
39	Printers	..	..	2	..	7	4	1	..	..	2	..	..	..	..	..	..	..	1	..
74	Railroading	3	..	..	..	8	2	1	6	3	1	2	..	2	..	2	..	1	2	..
10	Salesmen	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..
22	Sash and blind makers	..	..	..	..	3	..	..	2	..	..	..	1	1	1	..	1	..	1	..
115	Shoe workers	..	..	..	1	4	1	1	3	3	3	6	3	10	..	9	3	3	3	1
6	Stone workers	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	1
4	Tailors	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..
7	Tanners	..	..	..	..	..	..	..	1	1	..	1	1	..	..	..	..	..	..	..
4	Upholsterers	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
14	Wood workers	..	..	..	..	..	..	..	2	..	1	1	..	..	..	..	..	..	1	..
54	Miscellaneous	..	..	..	1	8	3	2	2	1	1	..	..	1	..	4	..	..	4	1
711		4	2	5	16	60	28	13	37	15	21	28	10	36	5	23	8	6	21	6

STATISTICAL SUMMARY.

TABLE 65 (CONCLUDED).—*Time unemployed during year and cause of same.*

Unemployed during Year																		Cause of Non-employment.							
17 weeks.	18 weeks.	19 weeks.	20 weeks.	21 weeks.	22 weeks.	23 weeks.	24 weeks.	25 weeks.	26 weeks.	27 weeks.	28 weeks.	29 weeks.	30 weeks.	33 weeks.	35 weeks.	36 weeks.	38 weeks.	42 weeks.	Over 42 weeks.	Not reporting.	No work.	Sickness.	Sickness and no work.	Vacation.	Shutdown.	Other causes.	Not reporting.
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	1	....	....	....	....	....	1
..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	5	....	3	....	....	....	....	4
..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	1	5	6	....	1	2	....	....	3
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	....	....	1	....	....	....
..	..	..	1	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	8	1	3	....	3	....	....	....
..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	5	2	4	....	1	....	....	1
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	2	....	....	....	....	1
2	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	*1	6	3	3	....	3	1	‖7	1
1	..	..	..	..	..	..	..	1	..	1	..	1	..	..	..	..	..	..	..	..	4	6	4	1	....	....	....	2
..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	5	3	2	1	2	....	....	1
..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	8	3	2	....	2	....	....	....
2	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	23	1	2	....	19	....	....	7
1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	2	2	....	5	1	....	....
1	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	3	7	....	....	3	....	....	....
2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9	4	....	....	3	1	....	....
1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	2	4	....	....	....	2	....	....
3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	5	1	....	2	....	....	1
3	..	..	1	..	1	..	..	2	..	1	..	..	..	1	..	..	..	..	..	†2	18	26	9	....	6	4	....	4
4	..	..	1	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	3	17	1	....	4	....	....	....
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	3	....	....	....	....	....	....
1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	2	....	....	....	1	....	1
..	..	..	1	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	19	5	5	....	10	....	....	....
4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	37	8	12	....	14	....	....	3
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	1	1	....	....	....	....	....
1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	10	4	1	1	2	1	....	3
11	..	..	5	..	..	..	..	15	..	1	..	..	1	..	1	..	1	..	..	..	26	53	7	4	7	7	....	11
2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	1	....	....	....	¶1	1
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	....	....	....	2	....	....	....
..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	2	3	....	....	....	2	....	....
..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	....	....	....	....	....	....
..	..	..	1	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	‡1	5	6	1	....	1	1	....	....
4	..	..	3	..	..	..	..	2	..	..	..	..	..	..	1	..	..	..	..	..	16	14	6	....	14	1	....	3
43	1	..	15	1	2	..	..	33	..	4	..	2	3	4	2	1	1	2	4	249	198	72	8	106	22	8	48

* 46 weeks; † one 46, one 48 weeks; ‡ 48 weeks; ‖ one, business failure; six, boiler explosion; ¶ strike.

STATISTICAL SUMMARY.

TABLE 66.—*Showing weekly wages paid.*

No. considered.	CLASSIFICATION.	Weekly Wages.										
		$5.00 per wk.	$5.50 per wk.	$6.00 per wk.	$6.50 per wk.	$7.00 per wk.	$7.50 per wk.	$8.00 per wk.	$8.50 per wk.	$9.00 per wk.	$9.50 per wk.	$10.00 per wk.
5	Bakers	..	..	..	..	..	..	..	..	..	..	..
12	Barbers	..	..	..	..	..	..	..	..	..	..	1
17	Blacksmiths	..	..	1	1	..	..	..	..	..	..	1
4	Bookbinders	..	..	..	..	..	..	..	..	..	..	..
15	Bookkeepers	..	..	..	..	1	1	..	..	..	..	4
13	Box makers	..	..	2	..	1	..	3	..	2	..	..
6	Brass workers	..	..	..	1	..	1	2	..	2	..	..
24	Cabinet makers	..	..	..	..	1	..	1	1	3	..	4
17	Carpenters	..	..	..	..	..	..	..	..	3	..	..
14	Carriage workers	..	..	..	..	..	1	..	..	1	..	..
15	Cigar makers	1	..	..	..	..	..	..	..	1	..	..
52	Clerks	1	..	3	1	2	1	1	..	8	..	6
16	Coopers	1	..	2	..	..	..	..	..	4	..	5
13	Cutlers	..	1	..	..	1	2	1	..	3	1	2
17	Engineers (stationary)	..	..	..	..	1	..	..	..	2	2	2
8	Harness makers	..	..	..	..	1	1	1	..	1	..	2
10	Laborers	..	..	..	..	1	1	..	..	6	..	..
67	Machinists	..	..	1	..	1	..	2	1	9	3	3
25	Molders (iron)	..	..	..	..	..	1	..	1	2	..	1
5	Needle makers	..	..	..	..	..	..	..	..	..	..	..
7	Pattern makers	..	..	..	..	..	..	..	..	..	..	..
39	Printers	1	..	2	..	..	1	1	..	4	..	2
74	Railroading	..	..	..	1	1	1	..	4	1	3	4
10	Salesmen	..	..	..	..	..	..	..	..	..	..	2
22	Sash and blind makers	..	..	..	1	..	3	..	2	3	2	3
115	Shoe workers	1	..	1	..	1	3	2	..	14	1	12
6	Stone workers	..	..	..	..	..	..	..	..	1	..	..
4	Tailors	..	..	..	..	..	..	1	..	..	..	..
7	Tanners	..	..	..	..	..	1	3	..	..	..	..
4	Upholsterers	..	..	..	..	..	..	..	..	..	..	..
14	Wood workers	..	..	1	..	..	1	1	..	1	..	2
54	Miscellaneous	..	..	5	1	..	3	1	3	11	1	5
711		5	1	18	6	12	22	20	12	82	13	61

STATISTICAL SUMMARY.

TABLE 66 (CONCLUDED).—*Showing weekly wages paid.*

Weekly Wages.

$10.50 per wk.	$11.00 per wk.	$11.50 per wk.	$12.00 per wk.	$12.50 per wk.	$13.00 per wk.	$13.50 per wk.	$14.00 per wk.	$14.50 per wk.	$15.00 per wk.	$15.50 per wk.	$16.00 per wk.	$16.50 per wk.	$17.00 per wk.	$17.50 per wk.	$18.00 per wk.	$18.50 per wk.	$19.00 per wk.	$19.50 per wk.	$20.00 per wk.	$20.50 per wk.	$21.00 per wk.	$21.50 per wk.	$22.00 per wk.	$23.00 per wk.	$24.00 per wk.	$25.00 per wk.	$26.00 per wk.	$27.00 per wk.	$28.00 per wk.	$29.00 per wk.	$30.00 per wk.	Not reporting.
..	..	..	1	..	1	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
..	..	..	3	..	1	..	1	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	4
1	1	..	3	..	..	2	..	..	3	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3
..	..	..	1	..	..	..	..	..	1	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
..	..	..	3	..	..	2	..	..	..	..	1	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4	..	..	3	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	4
6	..	1	2	..	..	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
..	..	..	3	1	..	1	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4
..	..	..	1	..	1	..	1	..	5	..	2	..	..	..	1	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..
1	5	1	8	..	2	2	..	..	1	..	1	..	1	..	3	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	2
..	..	..	2	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	1	..	3	..	..	2	1	..	2	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	3	2	12	2	3	12	..	..	6	..	..	..	..	..	2	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	2
1	..	3	5	1	1	1	1	..	4	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..
1	..	..	2	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	2	..	..	1	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1
..	2	..	12	..	..	3	1	..	5	..	1	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	2
8	3	2	13	4	1	4	5	5	..	..	1	..	..	1	3	..	3	..	2	..	1	..	1	..	..	1	..	..	..	..	..	1
..	..	..	5	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..
..	..	..	4	..	..	1	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3	10	..	25	1	3	12	3	..	7	..	..	..	2	..	1	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	11
1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	1	..	..	..	..	..	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	1	..	3	..	..	1	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7	2	..	5	..	..	1	..	..	3	..	..	..	..	..	3	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	1
38	28	9	129	9	13	17	13	5	57	..	10	2	4	1	27	..	3	1	10	..	4	..	4	..	3	2	..	1	..	..	..	39

STATISTICAL SUMMARY.

TABLE 67.—*Wages decreased and amount of weekly decrease.*

No. considered.	CLASSIFICATION.	Wages decreased.			Weekly Decrease in Wages.														
		Yes.	No.	Not reporting.	50 cents.	75 cents.	$1.00.	$1.25.	$1.50.	$1.75.	$2.00.	$2.50.	$3.00.	$3.50.	$4.00.	$4.50.	$5.00.	$5.50.	$6.00.	Not reporting.
5	Bakers	...	5	....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12	Barbers	5	3	4	..	..	1	..	..	..	..	..	1	..	..	..	..	..	2	1
17	Blacksmiths	8	3	6	..	..	1	..	2	..	..	2	1	..	..	..	..	..	..	2
4	Bookbinders	....	3	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
15	Bookkeepers	...	10	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
13	Box makers	1	10	2	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
6	Brass workers	6	....	....	1	..	2	..	..	..	..	..	1	1	..	..	..	..	1	..
24	Cabinet makers	16	7	1	..	..	5	4	3	1	1	1	1	..	..	..	..	..	..	..
17	Carpenters	5	10	2	..	..	..	..	2	..	..	..	2	..	..	..	..	..	..	1
14	Carriage workers	...	9	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
15	Cigar makers	1	14	....	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..
52	Clerks	4	46	2	..	..	..	..	..	1	1	1	..	1	..	..	..	..	..	..
16	Coopers	1	13	2	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
13	Cutlers	12	....	1	..	1	..	1	5	1	..	..	..	3	1	..	..	..	..	..
17	Engineers (stationary)	3	14	....	..	..	..	..	1	..	..	..	1	1	..	..	..	..	..	..
8	Harness makers	4	3	1	..	..	1	..	1	..	1	..	1	..	..	..	..	..	..	..
10	Laborers	4	5	1	..	..	1	..	2	..	..	..	1	..	..	..	..	..	..	..
67	Machinists	37	28	2	4	1	6	6	6	3	2	1	5	3	..	..	..	..	..	..
25	Molders (iron)	12	11	2	..	2	1	2	1	..	1	1	2	1	..	..	..	..	1	..
5	Needle makers	....	5	....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7	Pattern makers	....	5	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
39	Printers	*4	29	6	1	..	..	..	1	..	..	..	..	1	..	..	..	..	..	1
74	Railroading	8	52	14	..	..	..	1	3	..	..	1	1	..	1	..	1	..	..	..
10	Salesmen	....	8	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
22	Sash and blind makers	9	13	....	3	2	3	..	1	..	..	..	..	..	..	..	..	..	..	..
115	Shoe workers	45	63	7	2	2	7	2	9	1	12	3	..	2	2	..	1	..	1	4
6	Stone workers	1	5	....	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
4	Tailors	....	3	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7	Tanners	2	5	....	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..
4	Upholsterers	2	1	1	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..
14	Wood workers	4	10	....	..	..	..	1	1	..	..	..	2	..	..	..	..	..	..	..
54	Miscellaneous	17	36	1	2	2	3	1	2	2	1	1	1	..	1	..	..	..	1	..
711		211	429	71	13	10	34	18	39	10	19	11	22	13	5	..	2	..	6	9

* One reported an increase in wages.

STATISTICAL SUMMARY.

TABLE 68.—*When paid wages, if withheld, and length of time.*

Wages paid.					Wages withheld.			Wages withheld																				
Weekly.	Fortnightly.	Monthly.	Irregularly.	Not reporting.	Yes.	No.	Not reporting.	1 day.	2 days.	3 days.	4 days.	5 days.	6 days.	7 days.	8 days.	9 days.	10 days.	11 days.	12 days.	13 days.	14 days.	15 days.	16 days.	17 days.	18 days.	Over 18.	Not reporting.
5	....	....	....	....	....	4	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
8	....	....	....	4	....	8	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9	3	....	....	5	4	8	5	..	2	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4	....	....	....	....	....	3	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7	2	3	....	3	2	11	2	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
8	3	....	....	2	5	7	1	1	..	..	1	1	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..
6	....	....	....	....	....	5	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5	2	16	....	1	16	6	2	..	..	2	..	..	..	2	..	1	7	..	..	..	..	4	..	..	..	..	..	..
10	1	1	1	4	....	15	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2	4	3	....	5	5	4	5	..	..	..	..	..	3	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..
15	....	....	....	....	....	13	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
42	....	8	*2	....	2	42	8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
....	1	12	*3	....	5	9	2	..	..	..	..	..	..	..	..	..	1	..	..	..	1	2	..	..	..	..	..	1
13	....	....	....	....	6	7	..	..	..	1	..	..	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
11	3	....	....	....	9	4	4	..	..	3	..	2	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5	....	2	....	1	2	5	1	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
6	1	3	....	....	6	3	1	..	..	2	1	..	..	..	2	..	..	..	..	..	..	1	..	..	..	..	..	..
28	19	18	....	2	31	31	5	2	1	3	2	2	11	2	1	..	1	..	2	1	..	3	..	..	..	..	..	..
17	5	3	....	....	13	12	..	..	1	2	..	..	4	2	3	..	..	..	..	..	..	1	..	..	..	..	..	..
5	....	....	....	....	....	4	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2	2	1	....	2	2	3	2	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
34	1	3	....	1	12	22	5	11	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
22	1	50	..	1	19	51	4	..	..	1	..	..	7	2	..	..	3	..	3	..	..	3	..	..	..	..	..	..
5	1	3	1	....	....	9	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6	....	16	....	....	8	14	..	..	..	..	..	..	2	1	..	..	1	..	..	..	..	4	..	..	..	..	..	..
86	19	2	5	3	55	49	11	1	15	16	5	..	18	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	1	3	1	....	3	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..
1	1	1	1	....	1	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
....	5	1	*1	....	2	4	1	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4	....	....	....	....	1	3	....	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7	2	4	1	....	6	8	....	1	..	..	1	1	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
21	13	9	5	8	11	35	8	3	1	1	..	..	2	1	2	..	1	..	..	..	..	..	..	..	..	..	..	..
398	90	162	21	40	226	405	80	20	21	34	12	7	61	10	8	1	18	..	5	1	1	23	..	..	..	..	..	4

* Three paid quarterly.

STATISTICAL SUMMARY.

TABLE 69.—*Yearly earnings.*

No. considered.	CLASSIFICATION.	Yearly Earnings.																			
		Less than $100.	$100 to $125.	$125 to $150.	$150 to $175.	$175 to $200.	$200 to $225.	$225 to $250.	$250 to $275.	$275 to $300.	$300 to $325.	$325 to $350.	$350 to $375.	$375 to $400.	$400 to $425.	$425 to $450.	$450 to $475.	$475 to $500.
5	Bakers	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
12	Barbers	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
17	Blacksmiths	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	4
4	Bookbinders	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
15	Bookkeepers	..	..	..	..	..	..	1	..	1	..	1	1	1	..	..	..	1
13	Box makers	..	..	..	1	1	..	1	..	..	..	1	..	2	..	..	1	..
6	Brass workers	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..
24	Cabinet makers	..	..	..	..	..	..	..	2	..	1	1	..	1	2	4	1	2
17	Carpenters	..	..	..	..	..	..	..	..	1	..	1	..	1	..	..	..	1
14	Carriage workers	..	..	1	..	..	..	..	..	..	..	..	..	1	1	..	..	1
15	Cigar makers	..	..	..	..	..	..	..	1	..	..	..	2	..	..	..	..	1
52	Clerks	..	1	..	..	..	..	1	..	3	..	3	..	1	..	3	..	5
16	Coopers	..	..	..	..	..	..	1	..	3	..	..	..	..	3	..	1	3
13	Cutlers	..	..	..	..	1	..	1	1	..	3	1	..	2	..	1	1	..
17	Engineers (stationary)	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	3	..
8	Harness makers	..	..	..	..	..	..	..	..	2	..	1	1	2	..	..	..	..
10	Laborers	1	..	..	..	..	..	..	1	2	1	3	..	..	1	..	..	1
67	Machinists	2	2	..	..	..	1	2	2	1	..	1	2	4	1	7	4	2
25	Molders (iron)	..	..	..	1	1	..	..	2	2	1	1	..	..	2	..	1	4
5	Needle workers	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..
7	Pattern makers	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	1
39	Printers	..	..	..	..	..	..	1	2	2	..	..	..	3	2	2	..	1
74	Railroading	..	..	..	..	..	..	..	..	1	..	3	..	1	4	6	1	9
10	Salesmen	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
22	Sash and blind makers	..	..	..	..	..	..	..	..	2	..	2	2	4	2	4	..	2
115	Shoe workers	1	..	1	1	2	1	3	3	10	5	4	6	9	5	5	5	11
6	Stone workers	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	1
4	Tailors	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..
7	Tanners	..	..	..	..	..	..	..	..	..	1	1	..	1	..	..	..	1
4	Upholsterers	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
14	Wood workers	1	..	..	..	..	..	1	..	1	1	..	1	..	..	2	1	..
54	Miscellaneous	..	..	..	..	..	1	2	1	3	3	3	3	4	..	5	4	5
711		5	3	2	3	6	3	16	15	36	16	29	18	38	24	43	25	57

STATISTICAL SUMMARY.

TABLE 69 (CONCLUDED).—*Yearly earnings.*

Yearly Earnings.

$500 to $525.	$525 to $550.	$550 to $575.	$575 to $600.	$600 to $625.	$625 to $650.	$650 to $675.	$675 to $700.	$700 to $725.	$725 to $750.	$750 to $775.	$775 to $800.	$800 to $825.	$825 to $850.	$850 to $875.	$875 to $900.	$900 to $925.	$925 to $950.	$950 to $975.	$975 to $1,000.	$1,000 to $1,050.	$1,050 to $1,100.	$1,100 to $1,150.	$1,150 to $1,200.	$1,200 to $1,250.	$1,250 to $1,300.	$1,300 to $1,350.	$1,350 to $1,400.	$1,400 to $1,450.	$1,450 to $1,500.	$1,500 to $1,550.	$1,550 to $1,600.	Over $1,600.	Not reporting.
..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1
..	..	..	1	..	1	..	..	..	..	..	2	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6
1	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8
..	..	..	1	..	..	..	..	..	1	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	1	..	1	..	..	..	1	..	..	..	1	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	3
..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5
..	1	..	1	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	4
..	..	2	2	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8
..	1	..	2	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6
..	..	..	1	1	1	..	..	..	3	..	..	..	..	1	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	2
4	..	4	3	4	1	..	3	..	..	1	1	..	1	..	2	..	..	..	2	..	..	..	..	..	1	..	..	..	..	..	..	..	8
..	..	..	2	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
2	2	..	4	..	1	..	1	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	2	3	10	1	3	2	1	..	4	..	..	..	1	..	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6
..	..	..	1	..	..	..	1	1	1	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	3
..	..	..	1	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	2
..	4	..	8	1	..	1	2	1	3	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	4
4	5	..	9	2	8	1	3	2	2	1	2	1	..	..	2	..	2	..	3	..	1	..	1	..	..	..	..	..	..	..	..	..	..
1	1	..	3	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..
..	..	..	2	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4	3	5	3	..	4	2	..	1	..	1	2	..	1	1	1	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	14
..	..	..	..	1	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
1	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4
1	2	..	2	..	1	..	3	..	2	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	2	..	..	..	5
18	22	14	62	11	25	9	19	8	17	4	14	1	4	4	13	..	5	1	8	..	4	..	5	..	2	..	1	..	2	..	..	..	99

STATISTICAL SUMMARY.

TABLE 70.—*Income (aside from wages of self.)*

No. considered.	CLASSIFICATION.	Number reporting Income (aside from wages of self.)																			
		Less than $25.	$25 to $50.	$50 to $75.	$75 to $100.	$100 to $125.	$125 to $150.	$150 to $175.	$175 to $200.	$200 to $225.	$225 to $250.	$250 to $275.	$275 to $300.	$300 to $325.	$325 to $350.	$350 to $375.	$375 to $400.	$400 to $425.
5	Bakers																	
12	Barbers																	
17	Blacksmiths						1											
4	Bookbinders						1											
15	Bookkeepers		1			1	1						1					
13	Box makers		3		1								1					
6	Brass workers	1																
24	Cabinet makers		1		2		1		2	1	1							
17	Carpenters						3											
14	Carriage workers			1			1		1					1				
15	Cigar makers				1													
52	Clerks	1	3	2	3	1	1		1				1			1		
16	Coopers		1		3				1				1					
13	Cutlers		1															
17	Engineers (stationary)		2	1						1			1					
8	Harness makers																	
10	Laborers	1	1															
67	Machinists		1	2	1	2	3	1	1	1	1	1	1					1
25	Molders (iron)				1		3				1	1				1		
5	Needle makers									1	1							
7	Pattern makers												1					
39	Printers	1	3	1						1			1					1
74	Railroading	4	2	2	3		1		1			2	1		1			
10	Salesmen				2				1				1					
22	Sash and blind makers		5	1	1						1							
115	Shoe workers	4	2	4	3		2	2	3	2	1		2	1	1			
6	Stone workers							1										
4	Tailors																	
7	Tanners					1												
4	Upholsterers																	
14	Wood workers	1		1		1		1	1				1					
54	Miscellaneous	1	3	1	1	1	2						3		1			
711		14	29	16	22	7	20	5	13	6	6	4	16	2	3	2		2

STATISTICAL SUMMARY.

TABLE 70 (CONCLUDED).—*Income (aside from wages of self.)*

Number reporting Income (aside from wages of self.)

$425 to $450.	$450 to $475.	$475 to $500.	$500 to $525.	$525 to $550.	$550 to $575.	$575 to $600.	$600 to $625.	$625 to $650.	$650 to $675.	$675 to $700.	$700 to $725.	$725 to $750.	$750 to $775.	$775 to $800.	$800 to $825.	$825 to $850.	$850 to $875.	$875 to $900.	$900 to $925.	$925 to $950.	$950 to $975.	$975 to $1,000.	$1,050 to $1,100.	$1,100 to $1,150.	$1,150 to $1,200.	$1,200 to $1,250.	$1,250 to $1,300.	$1,300 to $1,350.	$1,350 to $1,400.	$1,400 to $1,450.	Over $1,450.	Not reporting.
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	12
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	16
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3
..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	16
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	14
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10
..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13
..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	36
..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	12
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	12
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8
..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	49
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	18
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3
..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	3
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	31
..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	56
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6
..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13
..	..	..	..	..	1	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	85
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5
.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	41
.	2	3	..	1	1	1	1	2	..	..	..	..	..	1	1	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	529

STATISTICAL SUMMARY.

TABLE 71.—*Showing total yearly income.*

No. considered.	CLASSIFICATION.	Total yearly Income.																			
		Less than 100.	$100 to $125.	$125 to $150.	$150 to $175.	$175 to $200.	$200 to $225.	$225 to $250.	$250 to $275.	$275 to $300.	$300 to $325.	$325 to $350.	$350 to $375.	$375 to $400.	$400 to $425.	$425 to $450.	$450 to $475.	$475 to $500.	$500 to $525.		
5	Bakers	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..		
12	Barbers	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..		
17	Blacksmiths	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	4	..		
4	Bookbinders	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
15	Bookkeepers	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..		
13	Box makers	..	..	..	..	..	1	..	..	1	..	..	..	3	..	..	2	..	..		
6	Brass workers	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..		
24	Cabinet makers	..	..	..	..	..	..	..	2	..	..	..	1	1	2	2	2	..	..		
17	Carpenters	..	..	..	..	..	..	..	..	..	..	1	..	1	..	1	..	..	..		
14	Carriage workers	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..		
15	Cigar makers	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	1	..		
52	Clerks	..	..	1	..	..	..	1	..	3	..	1	..	..	..	4	1	4	..		
16	Coopers	..	..	..	..	..	..	1	..	2	..	..	..	..	1	1	..	2	2		
13	Cutlers	..	..	..	..	1	..	1	1	..	3	1	..	1	..	2	1	..	..		
17	Engineers (stationary)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	..		
8	Harness makers	..	..	..	..	..	..	..	..	2	..	1	1	2	..	..	..	..	..		
10	Laborers	1	..	..	..	..	..	..	..	2	2	2	..	1	..	..	..	1	..		
67	Machinists	..	2	..	..	..	1	..	1	2	2	1	1	2	1	6	6	1	2		
25	Molders (iron)	..	..	..	..	..	..	..	2	3	1	1	..	..	1	..	2	2	..		
5	Needle workers	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..		
7	Pattern makers	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..		
39	Printers	..	..	..	..	..	..	1	1	2	..	..	1	2	1	1	..	1	1		
74	Railroading	..	..	..	..	..	..	..	..	1	..	2	..	1	3	5	1	8	5		
10	Salesmen	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1		
22	Sash and blind makers	..	..	..	..	..	..	..	..	2	..	1	3	1	2	2	..	5	..		
115	Shoe workers	1	..	1	..	1	1	2	3	5	4	3	8	10	5	3	7	9	4		
6	Stone workers	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	1	..		
4	Tailors	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..		
7	Tanners	..	..	..	..	..	..	..	..	..	2	1	..	1	..	..	..	..	..		
4	Upholsterers	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1		
14	Wood workers	1	..	..	..	..	..	..	..	..	2	..	..	..	..	2	..	3	..		
54	Miscellaneous	..	..	..	..	..	1	2	1	2	3	2	2	4	..	4	3	6	..		
711		3	2	2	..	3	4	9	13	28	20	20	18	30	18	37	29	49	16		

STATISTICAL SUMMARY.

TABLE 71 (CONCLUDED).—*Total yearly income.*

Total yearly Income.

$525 to $550.	$550 to $575.	$575 to $600.	$600 to $625.	$625 to $650.	$650 to $675.	$675 to $700.	$700 to $725.	$725 to $750.	$750 to $775.	$775 to $800.	$800 to $825.	$825 to $850.	$850 to $875.	$875 to $900.	$900 to $925.	$925 to $950.	$950 to $975.	$975 to $1,000.	$1,000 to $1,050.	$1,050 to $1,100.	$1,100 to $1,150.	$1,150 to $1,200.	$1,200 to $1,250.	$1,250 to $1,300.	$1,300 to $1,350.	$1,350 to $1,400.	$1,400 to $1,450.	$1,450 to $1,500.	$1,500 to $1,550.	$1,550 to $1,600.	Over $1,600.	Not reporting.
..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1
..	..	1	..	1	..	..	..	..	..	2	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6
..	..	..	..	..	1	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8
..	..	1	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
..	..	1	..	2	1	1	..	..	..	2	..	..	..	..	1	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	4
..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5
1	1	2	..	..	1	1	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	4
..	2	1	1	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	7
2	..	1	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7
..	..	1	..	1	..	1	..	3	..	..	..	1	1	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	2
3	2	2	6	2	..	3	1	..	1	1	1	..	..	..	..	..	1	1	..	..	..	..	1	..	1	..	..	..	..	..	2	9
..	..	2	..	..	..	..	..	..	..	2	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1
..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
1	1	3	1	1	..	1	1	2	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	...
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....
3	3	6	1	1	2	2	..	2	1	1	2	1	..	3	..	..	1	..	..	1	..	1	..	1	..	..	..	..	..	..	..	7
1	..	1	..	1	..	1	1	2	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	2
..	..	1	1	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....
..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1
3	1	7	1	2	1	2	1	3	..	..	..	..	..	..	..	..	..	1	..	2	..	..	..	..	..	..	..	..	..	..	..	4
3	1	7	2	7	..	7	1	2	2	1	2	..	1	2	1	2	1	3	..	1	..	1	..	..	..	..	..	..	..	..	1	....
..	..	2	..	..	..	2	..	..	..	..	..	1	..	..	..	..	..	1	..	1	..	..	..	1	..	..	..	..	..	..	..	....
..	..	2	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1
5	7	4	..	4	2	..	..	..	2	2	..	1	..	1	..	1	1	1	..	1	..	1	..	1	..	..	..	1	..	..	..	13
..	..	..	1	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....
..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....
..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4
2	..	2	1	..	..	3	1	4	2	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	2	..	..	..	5
24	18	51	15	24	11	26	10	20	9	16	6	6	6	12	3	6	5	12	..	6	..	7	..	5	..	3	..	4	..	..	4	101

STATISTICAL SUMMARY.

TABLE 72.—*Yearly (single) living expenses.*

No. considered.	Classification.	Yearly (single) Expenses.																						
		Total number single.	$175 to $200.	$200 to $225.	$225 to $250.	$250 to $275.	$275 to $300.	$300 to $325.	$325 to $350.	$350 to $375.	$375 to $400.	$400 to $425.	$425 to $450.	$450 to $475.	$475 to $500.	$500 to $525.	$525 to $550.	$550 to $575.	$575 to $600.	Over $600.	Not reporting.
5	Bakers	1							1															
12	Barbers	3				1							1											1
17	Blacksmiths	4			1																			3
4	Bookbinders	2						2																
15	Bookkeepers	6	2						1												1			2
13	Box makers	2									1													1
6	Brass workers	1																						1
24	Cabinet makers	3					1																	2
17	Carpenters	6					2				1												1	2
14	Carriage workers	3																						3
15	Cigar makers	6				2			1	1					1									1
52	Clerks	21	3	1	3		1	1					1		1								1	9
16	Coopers	4				1																		3
13	Cutlers	5	1	2																				2
17	Engineers (stationary)	2		1																				1
8	Harness makers	3				1	1								1									
10	Laborers	3				1	1																	1
67	Machinists	13	1	1			2															1		8
25	Molders (iron)	9							1			1												7
5	Needle workers	1																						1
7	Pattern makers																							
39	Printers	19	1	1		2		1			2													12
74	Railroading	12	1		1								1											9
10	Salesmen	4							1			1	1										1	
22	Sash and blind makers	3	1																					2
115	Shoe workers	35	2	3	3	4	5			3	2				1						1	1	10	
6	Stone workers	2						1																1
4	Tailors	1																						1
7	Tanners	3						1							1							1		
4	Upholsterers	1			1																			
14	Wood workers	3	1				1																	1
54	Miscellaneous	17		2	5		1			1							1				1		1	6
711		198	13	11	14	12	15	6	5	5	6	2	4		5		1		3	6	90			

STATISTICAL SUMMARY.

TABLE 73.—*Yearly (married) living expenses.*

| Total number married. | Yearly (married) Expenses. | | |

STATISTICAL SUMMARY.

TABLE 74.—*Economic conditions, etc.*

No. considered.	CLASSIFICATION.	Living Expenses.						Savings.				
		Earn more than pay.		Not reporting.	Wages of wife needed to support family.		Not reporting.	Savings bank account		Saved during year.		Not reporting.
		Yes.	No.		Yes.	No.		Yes.	No.	Yes.	No.	
5	Bakers	1	2	2	1	....	4	2	3	2	3	....
12	Barbers	3	2	7	....	....	12	5	5	2	8	2
17	Blacksmiths	8	4	5	1	1	15	4	9	9	4	4
4	Bookbinders	....	2	2	1	....	3	3	....	2	1	1
15	Bookkeepers	10	3	2	....	2	13	9	5	10	4	1
13	Box makers	3	5	5	4	....	9	2	9	5	6	2
6	Brass workers	....	5	1	2	....	4	2	4	1	5	....
24	Cabinet makers	9	11	4	3	2	19	11	11	8	14	2
17	Carpenters	7	5	5	3	1	13	6	9	7	8	2
14	Carriage workers	3	6	5	....	....	14	7	4	4	7	3
15	Cigar makers	7	5	3	....	....	15	5	8	6	7	2
52	Clerks	32	14	6	2	1	49	32	12	30	14	8
16	Coopers	6	8	2	3	1	12	7	7	5	9	2
13	Cutlers	4	6	3	1	1	11	6	5	4	7	2
17	Engineers (stationary)	8	6	3	....	3	14	7	8	6	9	2
8	Harness makers	3	3	2	....	1	7	4	3	3	4	1
10	Laborers	2	7	1	1	....	9	2	7	1	8	1
67	Machinists	33	18	16	8	7	52	33	24	24	33	10
25	Molders (iron)	8	13	4	4	3	18	9	15	7	17	1
5	Needle makers	5	....	....	....	....	5	....	4	3	1	1
7	Pattern makers	5	....	2	1	3	3	4	1	4	1	2
39	Printers	17	14	8	....	2	37	19	15	20	14	5
74	Railroading	41	26	7	8	7	59	39	31	35	35	4
10	Salesmen	7	1	2	....	2	8	8	2	7	3	....
22	Sash and blind makers	12	8	2	1	2	19	10	11	13	8	1
115	Shoe workers	38	63	14	9	13	93	35	65	29	71	15
6	Stone workers	3	3	....	1	3	2	3	3	1	5	....
4	Tailors	3	1	....	1	....	3	2	1	3	....	1
7	Tanners	3	4	....	1	...	6	1	6	....	7	....
4	Upholsterers	4	....	....	1	2	1	2	2	1	3	....
14	Wood workers	3	7	4	2	3	9	6	7	3	10	1
54	Miscellaneous	17	31	6	7	7	40	19	31	18	32	4
711		305	283	123	66	67	578	304	327	273	358	80

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TABLE 75.—*Home ownership, value of homes, etc.*

Own a home.		Estimated Value of Homes.																			Incumbered.			Insured.		
Yes.	No.	Not reporting.	Under $500.	$500 to $750.	$750 to $1,000.	$1,000 to $1,250.	$1,250 to $1,500.	$1,500 to $1,750.	$1,750 to $2,000.	$2,000 to $2,250.	$2,250 to $2,500.	$2,500 to $2,750.	$2,750 to $3,000.	$3,000 to $3,250.	$3,250 to $3,500.	$3,500 to $3,750.	$3,750 to $4,000.	$4,000 to $4,250.	$4,250 to $4,500.	$4,500 to $5,000.	Over $5,000.	Not reporting.	No. reporting.		Not reporting.	No. reporting.		Not reporting.
																							Yes.	No.		Yes.	No.	
1	4	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..
2	8	2	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	1	..	2	..	..
8	2	7	..	1	1	..	..	..	4	1	..	..	..	..	..	..	..	..	..	..	..	..	1	3	5	..	7	..	1
2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	1	..	1	1
5	9	1	..	..	..	..	..	..	1	..	..	..	2	..	..	..	1	..	1	..	..	..	..	2	3	..	5	..	..
4	7	2	..	1	..	..	..	..	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	3	1	..	4	..	..
1	5	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..
13	11	..	..	..	3	2	1	..	1	2	1	..	..	..	..	..	1	..	..	..	..	..	2	7	6	..	12	1	..
6	10	1	..	1	..	..	2	..	..	..	1	..	1	..	..	..	1	..	..	..	..	..	..	..	6	..	6	..	..
10	1	3	1	..	..	1	1	..	2	..	2	1	1	..	..	..	..	..	..	..	..	..	1	4	6	..	10	..	..
1	4	10	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..
15	28	9	..	..	1	..	2	..	3	..	..	..	4	..	2	..	..	..	1	..	..	..	2	3	12	..	15	..	..
7	6	3	..	..	..	..	1	..	5	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	5	1	6	..	1
2	8	3	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	1	1	..
4	11	2	..	..	..	1	..	..	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..	3	1	..	4	..	..
2	6	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	..	2	..	..
1	8	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..
27	40	..	1	..	2	..	3	..	5	..	2	..	5	..	1	..	1	..	..	1	..	..	6	10	16	1	27	..	..
10	15	..	..	1	..	3	1	..	..	..	..	..	3	..	..	..	..	..	..	..	1	..	1	6	4	..	10	..	..
3	2	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	1	..	..	..	..	..	..	3	..	..	3	..	..
6	1	..	..	..	..	..	1	..	..	..	1	..	..	..	1	..	1	..	..	..	2	..	..	1	5	..	6	..	..
7	32	..	..	..	3	..	..	..	1	..	1	..	1	..	..	..	..	..	..	..	1	..	..	2	5	..	7	..	..
17	57	..	..	1	3	1	3	..	3	..	3	..	2	..	..	..	1	..	..	..	..	..	..	8	9	..	15	2	..
2	8	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	2	..	2	..	..
9	12	1	..	..	..	1	2	..	3	..	..	..	1	..	..	..	..	..	..	1	..	..	1	1	8	..	9	..	..
26	87	2	..	2	5	2	2	2	7	..	1	..	2	..	..	1	..	..	..	..	1	1	1	11	15	..	26	..	..
3	3	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	1	1	2	..	1
....	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4	3	..	..	..	..	..	2	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	2	2	..	4	..	..
1	3	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..
7	7	..	..	1	..	..	..	..	5	..	1	..	..	..	..	..	..	..	..	..	..	..	..	4	3	..	7	..	..
14	39	1	1	..	5	1	..	..	3	..	..	..	2	..	..	..	..	..	..	..	2	..	..	4	10	..	14	..	..
220	443	48	4	8	24	13	26	2	48	4	17	1	26	..	7	1	8	..	2	2	7	20	88	128	4	211	5	4

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TABLE 76.—*Number rooms occupied and sanitary condition.*

No. considered.	CLASSIFICATION.	Number owning Homes and occupying (each)											Sanitary condition.		
		Total number owning homes.	1 room.	2 rooms.	3 rooms.	4 rooms.	5 rooms.	6 rooms.	7 rooms.	8 rooms.	9 rooms.	10 rooms.	Not reporting.	Fair.	Good.	Not reporting.
5	Bakers	1	..	..	..	..	..	1	..	..	..	..	..	....	1	....
12	Barbers	2	..	..	..	..	..	..	..	1	1	..	..	....	2	....
17	Blacksmiths	8	..	..	..	..	3	..	3	1	..	1	..	....	7	1
4	Bookbinders	2	..	1	..	..	..	..	1	..	..	..	..	....	2	....
15	Bookkeepers	5	..	..	..	..	..	1	1	1	1	..	1	....	5	....
13	Boxmakers	4	..	..	..	..	2	..	2	..	..	..	..	....	4	....
6	Brass workers	1	..	..	..	..	..	1	..	..	..	..	..	....	1	....
24	Cabinet makers	13	..	..	..	..	..	4	4	4	..	..	1	....	12	1
17	Carpenters	6	..	..	..	..	3	..	..	2	1	..	..	....	6	....
14	Carriage workers	10	..	..	..	..	2	1	1	3	1	..	2	....	10	....
15	Cigar makers	1	..	..	..	..	..	..	..	..	..	..	1	....	....	1
52	Clerks	15	..	..	..	..	..	2	1	8	1	1	2	1	13	1
16	Coopers	7	..	..	..	..	..	..	1	1	1	2	2	1	4	2
13	Cutlers	2	..	..	..	1	..	..	1	..	..	..	..	....	2	....
17	Engineers (stationary)	4	..	..	..	..	2	..	..	2	..	..	..	....	4	....
8	Harness makers	2	..	..	..	..	..	..	1	1	..	..	..	....	2	....
10	Laborers	1	..	..	..	..	..	..	1	..	..	..	..	....	1	....
67	Machinists	27	..	..	..	..	..	13	6	2	2	1	3	2	24	1
25	Molders (iron)	10	..	..	..	1	1	2	4	1	1	..	..	....	9	1
5	Needle workers	3	..	..	..	..	..	..	2	1	..	..	..	....	3	....
7	Pattern makers	6	..	..	..	..	..	..	2	2	..	2	..	....	6	....
39	Printers	7	..	..	..	..	..	3	1	1	..	1	1	....	6	1
74	Railroading	17	..	..	..	..	..	3	5	3	2	3	1	....	16	1
10	Salesmen	2	..	..	..	..	..	..	1	1	..	..	..	....	2	....
22	Sash and blind makers	9	..	..	..	..	..	2	1	1	3	2	..	....	9	....
115	Shoe workers	26	..	..	..	..	2	5	6	6	2	3	2	4	21	1
6	Stone workers	3	..	1	..	..	..	..	1	..	..	..	1	....	2	1
4	Tailors	....	..	..	..	..	..	..	..	..	..	..	..	....	....	....
7	Tanners	4	..	..	..	1	..	..	2	..	1	..	..	....	3	1
4	Upholsterers	1	..	..	..	..	..	..	..	1	..	..	..	....	1	....
14	Wood workers	7	..	..	..	..	1	1	2	..	..	..	3	....	5	2
54	Miscellaneous	14	..	..	1	2	1	2	3	3	..	2	..	....	14	....
711		220	..	2	1	5	17	40	54	46	17	18	20	8	197	15

STATISTICAL SUMMARY.

TABLE 77.—*Hired tenements and monthly rent paid.*

| Occupy tenement. | | | Monthly Rent. | | |

STATISTICAL SUMMARY.

TABLE 78.—*Number rooms occupied in tenement and sanitary condition.*

No. considered.	Classification.	Number hiring tenements and occupying.										Sanitary condition.			
		Total number.	3 rooms.	4 rooms.	5 rooms.	6 rooms.	7 rooms.	8 rooms.	9 rooms.	10 rooms.	Not reporting.	Poor.	Fair.	Good.	Not reporting.
5	Bakers	3	..	2	..	..	1	..	..	..	..	....	....	3	....
12	Barbers	5	..	1	2	1	..	..	1	..	..	1	1	3	....
17	Blacksmiths	6	..	1	1	2	2	..	..	..	..	1	....	4	1
4	Bookbinders	1	..	..	1	..	..	..	..	..	..	1	....	....	....
15	Bookkeepers	3	..	..	..	2	1	..	..	..	..	....	....	3	....
13	Box makers	5	1	2	..	..	2	..	..	..	..	1	1	3	....
6	Brass workers	5	..	3	2	..	..	..	..	..	..	1	....	4	....
24	Cabinet makers	8	..	1	2	3	1	1	..	..	..	2	1	5	....
17	Carpenters	6	..	1	1	2	2	..	..	..	..	....	2	4	....
14	Carriage workers	3	..	..	1	2	..	..	..	..	..	1	....	1	1
15	Cigar makers	10	3	2	3	2	..	..	..	..	..	1	3	5	1
52	Clerks	16	1	1	4	5	2	1	1	..	1	2	2	10	2
16	Coopers	6	..	..	1	4	1	..	..	..	..	....	1	5	....
13	Cutlers	7	1	2	2	1	1	..	..	..	..	....	1	6	...
17	Engineers (stationary)	10	1	1	1	5	2	..	..	..	..	....	3	5	2
8	Harness makers	2	..	..	..	1	1	..	..	..	..	....	....	2	....
10	Laborers	6	2	1	..	2	1	..	..	..	..	....	2	2	2
67	Machinists	29	3	2	7	9	5	1	1	1	..	3	7	17	2
25	Molders (iron)	9	2	1	3	..	..	..	1	..	2	....	2	5	2
5	Needle makers	1	..	..	..	..	..	..	..	..	1	....	....	1	....
7	Pattern makers	1	..	..	..	1	..	..	..	..	..	....	....	1	....
39	Printers	15	1	2	3	1	6	1	..	1	..	....	5	10	....
74	Railroading	39	1	4	10	8	7	4	2	..	3	1	5	29	4
10	Salesmen	4	..	..	1	1	1	..	1	..	..	....	....	4	....
22	Sash and blind makers	6	..	2	1	1	1	..	..	1	..	2	...	4	...
115	Shoe workers	55	3	5	16	18	8	3	2	..	..	....	11	40	4
6	Stone workers	3	..	2	..	..	1	..	..	..	..	....	1	2	...
4	Tailors	2	..	1	..	..	1	..	..	..	..	....	....	2	...
7	Tanners	2	..	..	1	1	..	..	..	..	..	1	....	1	..
4	Upholsterers	2	..	2	..	..	..	..	..	..	..	....	1	1	...
14	Wood workers	8	1	..	3	2	2	..	..	..	..	....	3	5	...
54	Miscellaneous	23	4	5	6	3	2	1	..	..	2	3	3	16	1
711		301	24	44	72	77	51	12	9	3	9	21	55	203	

STATISTICAL SUMMARY.

TABLE 79.—*Board per week, including room, etc.*

Total number.	Board per week, including room.																Keep account of living expenses.			Take books from public library.			Belong to trade union.		
	$2.00 per wk.	$2.50 per wk.	$3.00 per wk.	$3.50 per wk.	$4.00 per wk.	$4.25 per wk.	$4.50 per wk.	$4.75 per wk.	$5.00 per wk.	$5.25 per wk.	$5.50 per wk.	$5.75 per wk.	$6.00 per wk.	$6.50 per wk.	$7.00 per wk.	$7.50 per wk.	$8.00 per wk.	$8.50 per wk.	$9.00 per wk.	Yes.	No.	Not reporting.	Yes.	No.	Not reporting.	Yes.	No.	Not reporting.
1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	2	2	3	..	....	5	..
2	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	3	7	2	6	2	4	4	7	1
3	..	..	..	1	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	12	4	9	5	3	1	16	..
2	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	1	2	1	....	2	2	....	3	1
7	..	..	1	1	1	1	1	..	..	..	1	1	..	..	..	..	..	..	..	6	9	..	9	6	..	....	15	..
3	..	..	..	..	1	..	..	..	1	..	..	..	..	..	1	..	..	..	..	2	6	5	5	6	2	....	13	..
1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	5	..	1	5	..	....	6	..
2	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	5	17	2	15	8	1	....	23	1
4	..	..	..	2	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	5	11	1	11	4	2	1	16	..
1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	9	2	4	9	1	....	13	1
4	..	..	1	..	..	..	..	..	2	..	..	..	1	..	..	..	..	..	..	4	11	..	8	4	3	13	2	..
16	..	3	..	6	3	..	1	..	2	..	..	..	1	..	..	..	..	..	..	14	27	11	27	17	8	....	45	7
5	..	..	..	1	1	1	1	..	1	..	..	..	..	..	..	..	..	..	..	6	8	2	8	6	2	1	14	1
3	..	..	..	..	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	2	10	1	10	3	..	1	11	1
3	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	11	..	5	12	..	....	17	..
4	..	..	..	..	3	..	..	..	1	..	..	..	..	..	..	..	..	..	..	4	4	..	5	3	..	....	8	..
3	..	..	1	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	3	7	..	4	5	1	....	10	..
10	..	..	1	2	3	..	..	..	2	..	..	..	1	1	..	..	..	..	..	14	50	3	37	28	2	4	62	1
6	..	..	..	..	3	..	..	..	..	..	..	..	2	1	..	..	..	..	..	6	18	1	10	15	..	5	19	1
1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	3	..	4	1	..	....	5	..
....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	6	..	3	4	..	....	7	..
17	1	..	1	3	4	..	4	..	4	..	..	..	..	..	..	..	..	..	..	12	24	3	21	12	6	20	16	3
17	..	..	1	3	2	1	1	..	1	..	1	..	2	1	1	..	2	1	..	24	43	7	36	36	2	11	60	3
4	..	..	..	..	..	..	..	..	1	..	1	..	1	..	1	..	..	..	..	5	5	..	5	5	..	1	9	..
5	..	1	1	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	18	..	13	9	..	1	21	..
29	1	..	1	3	8	2	4	..	4	..	2	..	1	..	1	..	2	..	..	32	72	11	53	47	15	28	84	3
2	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	3	3	..	2	3	1	3	3	..
2	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	....	2	2	3	1	..	....	4	..
1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	....	7	..	4	3	..	1	6	..
1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	3	..	....	4	..	....	4	..
2	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	3	10	1	5	9	..	....	13	1
15	..	1	..	..	8	..	1	..	3	..	..	..	1	..	1	1	..	..	..	9	39	6	26	24	4	....	54	..
176	2	5	10	26	49	5	19	..	26	..	8	2	10	3	4	1	4	2	..	184	460	67	351	301	59	95	591	25

STATISTICAL SUMMARY.

TABLE 80.—*Fraternal organizations, membership, yearly dues.*

No. considered.	CLASSIFICATION.	Belonging to						Not reporting.	Paying yearly dues of										
		1 society.	2 societies.	3 societies.	4 societies.	5 societies.	6 societies.		$2.00.	$3.00.	$4.00.	$5.00.	$6.00.	$7.00.	$8.00.	$9.00.	$10.00.	$11.00.	$12.00.
5	Bakers	1	..	..	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..
12	Barbers	3	2	3	..	..	..	4	..	2	..	..	1	..	1	..	..	..	..
17	Blacksmiths	10	1	..	..	1	..	5	1	..	2	1	..	1	..	..	..	..	1
4	Bookbinders	1	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	1
15	Bookkeepers	3	1	2	2	1	..	6	1	..	1	1	..	..	..	..	..	..	..
13	Boxmakers	5	2	1	..	..	..	5	1	1	1	..	..	..	..	..	..	..	..
6	Brass workers	4	..	1	..	..	..	1	..	..	..	2	1	..	..	..	..	..	..
24	Cabinet makers	10	1	4	3	..	..	6	1	..	2	..	..	..	..	1	4	..	2
17	Carpenters	3	..	2	..	1	..	11	..	..	1	..	..	1	..	..	..	..	..
14	Carriage workers	7	..	2	1	..	..	4	1	..	..	..	..	..	..	..	..	..	..
15	Cigar makers	7	4	1	2	1	..	..	..	..	..	1	..	..	1	..	1	..	..
52	Clerks	15	13	2	1	1	..	20	..	2	2	3	1	2	2	2	4	2	1
16	Coopers	3	2	..	1	..	..	10	..	..	..	..	1	..	..	..	..	..	..
13	Cutlers	7	2	..	..	..	..	4	1	..	1	2	3	..	1	..	..	..	..
17	Engineers (stationary)	5	4	..	2	1	..	5	1	..	1	1	1	1	..	..	1	..	..
8	Harness makers	5	3	..	..	..	..	..	..	..	..	1	1	..	1	..	1	1	..
10	Laborers	3	..	..	..	..	..	7	1	..	..	..	1	1	..	..	..	..	..
67	Machinists	24	16	4	1	1	..	21	1	2	1	3	8	1	1	1	3	1	3
25	Molders (iron)	8	2	3	1	..	..	11	..	..	1	..	3	..	..	..	1	..	1
5	Needle makers	3	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
7	Pattern makers	1	3	..	..	1	..	2	..	..	1	..	..	..	1	..	..	..	..
39	Printers	13	6	2	2	..	..	16	2	2	..	5	2	1	2	..	..	2	1
74	Railroading	21	23	8	2	..	..	20	..	1	2	4	3	2	3	..	3	1	2
10	Salesmen	4	2	2	..	..	..	2	..	..	..	1	1	..	..	..	1	..	..
22	Sash and blind makers	5	7	6	..	..	..	4	1	1	..	..	..	2	1	1	..	..	..
115	Shoe workers	29	24	9	5	1	1	46	2	..	5	5	10	3	6	2	6	3	2
6	Stone workers	..	3	1	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..
4	Tailors	2	1	..	..	..	..	1	..	..	..	1	..	..	..	1	..	..	..
7	Tanners	3	2	..	..	..	..	2	..	..	..	..	..	3	..	..	..	..	1
4	Upholsterers	2	1	..	..	..	..	1	..	..	..	..	2	1	..	..	..	..	..
14	Wood workers	3	2	1	1	1	..	6	1	..	..	..	..	..	..	..	..	..	..
54	Miscellaneous	13	12	3	..	..	..	26	2	1	..	1	1	1	..	..	2	..	2
711		223	140	57	24	10	1	256	17	12	21	32	40	20	20	8	27	10	10

STATISTICAL SUMMARY.

TABLE 80 (CONCLUDED).—*Yearly dues and weekly benefits.*

| *Paying yearly dues of | | | | | | | | | | | | | | | | | | | | | | | | | | | | †Entitled to weekly benefits of | | | | | | | | | | | | | | | | | | |

STATISTICAL SUMMARY.

TABLE 81.—*Death benefits entitled to.*

No. considered.	CLASSIFICATION.	Number entitled to death benefit of																
		Total number.	$25 to $50.	$50 to $75.	$75 to $100.	$100 to $125.	$125 to $150.	$150 to $175.	$175 to $200.	$200 to $225.	$225 to $250.	$250 to $275.	$275 to $300.	$300 to $325.	$325 to $350.	$350 to $375.	$375 to $400.	$400 to $425.
5	Bakers	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12	Barbers	8	2	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..
17	Blacksmiths	12	2	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..
4	Bookbinders	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
15	Bookkeepers	9	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
13	Box makers	8	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6	Brass workers	5	1	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..
24	Cabinet makers	18	4	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..
17	Carpenters	6	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
14	Carriage workers	10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
15	Cigar makers	15	..	..	2	..	..	..	1	..	1	..	..	..	3	..	..	..
52	Clerks	32	6	2	..	..	1	..	..	..	..	..	..	..	..	..	..	..
16	Coopers	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
13	Cutlers	9	5	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
17	Engineers (stationary)	12	2	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..
8	Harness makers	8	..	..	2	..	..	..	2	..	1	..	..	..	..	..	..	..
10	Laborers	3	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
67	Machinists	46	10	..	5	..	3	..	1	..	2	..	..	..	..	..	..	..
25	Molders (iron)	14	1	..	4	..	..	..	..	..	1	..	..	..	..	..	..	..
5	Needle makers	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7	Pattern makers	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
39	Printers	23	3	..	1	..	..	..	2	..	..	..	..	..	..	..	..	..
74	Railroading	54	7	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..
10	Salesmen	8	1	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..
22	Sash and blind makers	18	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
115	Shoe workers	69	18	3	7	1	..	..	..	1	..	..	..	..	..	..	..	..
6	Stone workers	4	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..
4	Tailors	3	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
7	Tanners	5	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
4	Upholsterers	3	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..
14	Wood workers	8	1	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..
54	Miscellaneous	28	4	..	1	..	2	..	1	..	..	..	..	..	..	..	..	..
711		455	76	6	40	3	8	..	9	1	5	..	1	..	3	..	..	..

STATISTICAL SUMMARY.

TABLE 81 (CONCLUDED).—*Death benefits entitled to.*

| | Entitled to death benefit of | | |

ANALYSIS OF WAGE-EARNERS' STATISTICS.

To the call for individual statistics reports were received from 711 individuals representing over thirty branches of industry, as follows: Five bakers, 12 barbers, 17 blacksmiths, 4 bookbinders, 15 bookkeepers, 13 box makers, 6 brass workers, 24 cabinet makers, 17 carpenters, 14 carriage workers, 15 cigar makers, 52 clerks, 16 coopers, 13 cutlers, 17 stationary engineers, 8 harness makers, 10 laborers, 67 machinists, 25 iron molders, 5 needle makers, 7 pattern makers, 39 printers, 74 railroad men, 10 salesmen, 22 sash and blind makers, 115 shoe workers, 6 stone workers, 4 tailors, 7 tanners, 4 upholsterers, 14 wood workers, and 54 representing various occupations.

The information secured in the reports is tabulated in the preceding pages individually and in summaries, and covers nearly the entire field of industrial economy. Of the total number reporting, 599, 84+ per cent., were born in America, and 112, 15+ per cent., in foreign countries, as follows: 373 were born in New Hampshire, 56 in Maine, 38 in Vermont, 77 in Massachusets, 6 in Connecticut, 49 in other states, 1 in Belgium, 43 in Canada, 7 in England, 2 in France, 5 in Germany, 37 in Ireland, 10 in Scotland, 4 in Sweden, and one each in Norway, Russia, and Switzerland.

While 84+ per cent. of those reporting were born in America, the nationality of parents of entire number were but 72+ per cent. American, and strangely enough the number of each (father and mother) was identically the same, 514. The same is true of foreign born parents—197 each, representing 27+ per cent., as follows: Canadian—father, 40; mother, 39. English—father, 16; mother, 24. French

—father and mother 9 each. German—father, 11; mother, 12. Irish—father, 98; mother, 90. Scotch—father, 13; mother, 16. Swede—father, 10; mother, 4. Norwegian—father and mother, 1 each. Russian—father, 1. Of the 27+ per cent. of foreign nationality, 47+ per cent., or nearly one-half, were of Irish origin.

Of the entire number, 513, or 72+ per cent., are married; 179, or 25+ per cent., unmarried; 19, or 2+ per cent., widowers. Sixty-five per cent. of the married persons report children in the family, 34+ per cent. no children. One hundred and thirty-nine families have one child each; ninety-one, 2 each; fifty-one, 3 each; twenty-nine, 4 each; twelve, 5 each; six, 6 each; five, 7 each: one 8, one 10, and one with 12 children in family, an average of 2+ each to 336 families; 177 families reported no children. Of the 751 children 393, or 52+ per cent. attend school; of this number 316 attend an average of 33 weeks each year. Twenty-six families did not report weeks at school.

The number in families dependent upon head of family for support varies from two to twelve in each. One hundred and seventy-three persons report two in family; 157 three in family; 102 four in family; 48 five in family; 36 six in family; 16 seven in family; 7 eight in family; 5 nine in family; 1 ten and 1 twelve in family. Average number in family, 3.50+.

The age at which those reporting began work varies from 5 years to 21 years; six report having begun work at 5 years of age, five at 6 years, five at 7 years, fourteen at 8 years, eighteen at 9 years, thirty-seven at 10 years, twelve at 11 years, sixty-five at 12 years, forty at 13 years, seventy-seven at 14 years, ninety-two at 15 years, ninety-nine at 16 years, fifty-seven at 17 years, sixty-eight at 18 years, twenty-one at 19 years, eighteen at 20 years, twenty-nine at 21 years and upwards; forty-eight made no report. The average age at which the total number began work was very nearly 15 years.

In the various occupations in which engaged, 358 have worked from 1 to 10 years each, 179 from 10 to 20 years, 93 from 20 to 30 years, 37 from 30 to 40 years, three 42 years, five 43 years, two 44 years, four 45 years, three 50 years, two 52 years; average number of years in occupation, 13+. One hundred and eleven have worked for present employer one year, ninety-nine 2 years, seventy-six 3 years, fifty-seven 4 years, forty-four 5 years, twenty-nine 6 years, thirty-three 7 years, twenty-three 8 years, seventeen 9 years, twenty 10 years, eleven 11 years, nineteen 12 years, nineteen 13 years, ten 14 years, ten 15 years, four 16 years, nine 17 years, six 18 years, ten 20 years, two 21 years, two 22 years, seven 23 years, six 24 years, ten 25 years, three 26 years, four 27 years, two 28 years, two 30 years, one each 33, 34, 35, and 36 years, two 38 years, four 40 years, one 41 years, one 42 years, two 43 years, two 45 years, average number of years with present employer, 7+.

The number of hours worked weekly varies from 36 to 98 according to occupation. Clerks work by far the greatest number of hours weekly, averaging 70+. Five report working 36 hours weekly, three 40 hours, eight 44 hours, fifteen 45 hours, seven 47 hours, twenty-nine 48 hours, three 49 hours, fifteen 50 hours, six 52 hours, six 53 hours, nineteen 54 hours, thirteen 55 hours, five 56 hours, ten 57 hours, thirteen 58 hours, one hundred and fifty-five 59 hours, two hundred forty-nine 60 hours, five 62 hours, eleven 64 hours, fourteen 66 hours, seven 68 hours, five 70 hours, twenty 72 hours, eight 74 hours, five 76 hours, six 78 hours, five 80 hours, three 82 hours, two 84 hours, two 86 hours, two 90 hours, three 96 hours, one 98 hours. Average number of hours for all (660) reporting, 59+ weekly; average number of hours, aside from (52) clerks, 58+ weekly.

The number of hours employed Saturdays varies from four to eighteen. Number reported working four hours, 7; five hours, 23; six hours, 11; seven hours, 23; eight hours, 72; nine hours, 185; ten hours, 210, eleven hours,

11; twelve hours, 30; thirteen hours, 11; fourteen hours, 19; fifteen hours, 19; sixteen hours, 10; seventeen hours, 2; eighteen hours, 3; average number of hours worked Saturday, 9+.

Sixty-four+ per cent. (462) of total number were unemployed from three days to nearly the entire year, as follows; four 3 days, two 4 days, five 5 days, sixteen 1 week, sixty 2 weeks, twenty-eight 3 weeks, thirteen 4 weeks, thirty-seven 5 weeks, fifteen 6 weeks, twenty-one 7 weeks, twenty-eight 8 weeks, ten 9 weeks, thirty-six 10 weeks, five 11 weeks, twenty-three 12 weeks, eight 13 weeks, six 14 weeks, twenty-one 15 weeks, six 16 weeks, forty-three 17 weeks, one 18 weeks, fifteen 20 weeks, one 21 weeks, two 22 weeks, thirty-three 25 weeks, four 27 weeks, two 29 weeks, three 30 weeks, four 33 weeks, two 35 weeks, one 36 weeks, one 38 weeks, two 42 weeks, two 46 weeks, two 48 weeks. Average number of weeks unemployed 10+ (10 weeks, 5 days), or 19+ per cent. of the entire time. Cause of non-employment: Out of work, 198; sickness, 72; sick and no work, 8; vacation, 106; shutdown, 22; business failure, 1; boiler explosion, 6; strike, 1.

Of the 711 persons considered, 672 report amount of wages received, which vary from $5 to $27 per week. More receive $12 per week than any other sum, which is slightly above the average amount received by the entire number reporting. Five are paid $5 a week, one $5.50, eighteen $6, six $6.50, twelve, $7, twenty-two $7.50, twenty $8, twelve $8.50, eighty-two $9, thirteen $9.50, sixty-one $10, thirty-eight $10.50, twenty-eight $11, nine $11.50, one hundred twenty-nine $12, nine $12.50, thirteen $13, forty-seven $13.50, thirteen $14, five $14.50, fifty-seven $15.00, ten $16, two $16.50, four $17, one $17.50, twenty-seven $18, three $19, one $19.50, ten $20, four 21, four $22, three $24, two $25, one $27. Average amount weekly wages paid all occupations, $11.47.

The average weekly earnings, by trades, as reported to

the bureau, are: Bakers, $16.20, barbers, $13.43, blacksmiths $12.14, bookbinders $14.75, bookkeepers $11.96, box makers $8.42, brass workers $8, cabinet makers $11.75, carpenters $11.59, carriage workers $12.35, cigar makers $14.66, clerks $11.02, coopers $10.09, cutlers $8.23, stationary engineers $11.75, harness makers $9.07, laborers $9.20, machinists, $11.99, iron molders, $13.04, needle makers $12.60, pattern makers $12.78, printers $11.23, railroad hands $12.87, salesmen $14.30, sash and blind makers $10.38, shoe workers $11.57, stone workers $14, tailors, $14.66, tanners $10.71, upholsterers $14.50, wood workers $10.82, miscellaneous occupations $10.58. The brass workers show the lowest average weekly wages, and the bakers the highest.

Nearly 30 per cent. (211) of total number report wages decreased, 429 no decrease in wages, 71 make no report; in only one instance is an increase in wages reported. Thirteen were reduced 50 cents per week, ten 75 cents, thirty-four $1, eighteen $1.25, thirty-nine $1.50, ten $1.75, nineteen $2, eleven $2.50, twenty-two $3, thirteen $3.50, five $4, two $5, six $6. Nine did not report amount decrease. Average decrease $1.92+ per week. Wages were paid weekly to 398 persons; quarterly, 3 persons; fortnightly, 90; monthly, 162; irregularly, 18; not reporting, 40. Wages were withheld, in 226 instances, from one to fifteen days. Twenty report wages withheld 1 day; twenty-one, 2 days; thirty-four, 3 days; twelve, 4 days; seven, 5 days; sixty-one, 6 days; ten, 7 days; eight, 8 days; one, 9 days; eighteen, 10 days; five, 12 days; one, 13 days; one, 14 days; twenty-three, 15 days; average number of days' pay withheld for the 222 reporting, 6+.

The average yearly earnings, in round numbers, of the bakers reporting was $750; barbers, $705, blacksmiths, $502; bookbinders, $737; bookkeepers, $558; box makers, $377; brass workers, $300; cabinet makers, $529; carpenters, $518; carriage workers, $488; cigar makers, $651;

clerks, $576; coopers, $473; cutlers, $359; stationary engineers, $572; harness makers, $343; laborers, $322; machinists, $507; iron molders, $512; needle makers, $526; pattern makers, $616; printers, $555; railroad men, $596; salesmen, $706; sash and blind makers, $455; shoe workers, $448; stone workers, $543; tailors, $725; tanners, $509; upholsterers, $566; wood workers, $398; those engaged in miscellaneous occupations, $507; average yearly earnings of the entire number (612) reporting, $529. One hundred and eighty-two persons (25+ per cent.) report income aside from individual earnings in amounts varying from $10 to $1,200, or an average of $183.72. In a few instances this additional income represents the earnings of other members of the family—wife and children—but very largely it comes from interest on savings bank deposits, rents, or through investments in other directions. This raises the total average yearly income of the above number (182) from $529 to $712.

The yearly living expenses of 108 single persons reporting vary from $175 to over $600, the average being $313. Ninety single persons made no report of living expenses. Of the 513 married persons considered 298 report yearly expenses of from $200 to over $1,000; average per family, $503; 215 married persons made no report of annual living expenses. The average living (single) expenses of bakers reporting was $350; barbers, $355; blacksmiths, $234; bookbinders, $306; bookkeepers, $331; box makers, $400; cabinet makers, $300; carpenters, $450; cigar makers, $346; clerks, $317; coopers, $275; cutlers, $209; stationary engineers, $208; harness makers, $331; laborers, $274; machinists, $315; iron molders, $382; printers, $296; railroad men, $287; salesmen, $505; sash and blind makers, $200; shoe workers, $304; stone workers, $538; tanners, $464; upholsters, $230; wood workers, $234; miscellaneous occupations, $328. The average living expenses of bakers (married) reporting was $618; barbers,

$583; blacksmiths, $350; bookbinders, $700; bookkeepers, $663; box makers, $375; brass workers, $400; cabinet makers, $521; carpenters, $511; carriage workers, $660; cigar makers, $643; clerks, $441; coopers, $491; cutlers, $331; stationary engineers, $530; harness makers, $431; laborers, $412; machinists, $499; iron molders, $578; needle makers, $399; printers, $627; railroad men, $471; salesmen, $500; sash and blind makers, $439; shoe workers, $472; tanners, $286; upholsterers, $461; wood workers, $549; those engaged in miscellaneous occupations, $603. Of the single men, the sash and blind makers represent the lowest average amount paid for annual living expenses, and the salesmen the highest. Of the men with families to support, the tanners represent the lowest average, and the bookbinders the highest.

Three hundred and five, 42+ per cent., report earning more than enough to pay living expenses, and 283, 39+ per cent., to the contrary; 123 make no report on the subject. Sixty-six report that wages of wife or children, or both, are required to pay family living expenses, and 67 that they are not; 578 neglect to report relative thereto. As an evidence of the generally thrifty condition of our laboring people, notwithstanding the severe industrial depression of the past year, 304, or 48+ per cent. of the number reporting to the bureau, have savings bank accounts, and 273, or 43+ per cent., saved money during that time. Three hundred and twenty-seven report having no savings bank account, and 358 that they saved nothing during the year. Eighty failed to report upon the matter of savings.

Thirty-three per cent. of those reporting upon the subject of home ownership (220) own homes, 443 do not, and 48 make no report. The estimated value of the homes varies from $300 to over $5,000, the average being $2,185. In 88 instances the homes are incumbered, in 128 they are free from debt, and all but five are insured against fire. Four make no report. The average number of rooms occupied

per family is 7+, and the sanitary condition of same good. None are reported poor, and but eight "fair."

Three hundred and one, or 42+ per cent., occupy tenements, and pay a monthly rental of from $3 to $25; average monthly rent, $9.92. The average number of rooms occupied is 5+ per family, and the sanitary condition of 21 tenements is reported poor, 55 fair, 203 good, and 22 fail to report. The amount paid for board, including room, by 176 individuals reporting varied from $2 to $8.50 per week; the average amount paid by the entire number is $4.62+ per week.

But comparatively few keep account of living expenses, the number reporting in the affirmative being 184, or 25+ per cent., and in the negative 460, with 67 not reporting. Over 50 per cent. take books from public libraries, the number taking advantage of this privilege being 351 as against 301 who do not; with 59 not stating—either way. Of the 711 persons considered, but 95, or 13+ per cent., are members of trade unions; 591, 86+ per cent., say they are not, and 25 make no report.

The tendency to join fraternal organizations for the purpose of obtaining care and relief in the event of sickness, and insurance for the family in case of death, is well-nigh universal. To the laboring classes and those of moderate means they offer many advantages not to be had elsewhere at so little cost, and this fact led 455 of the 711 persons considered, 64 per cent., to join from one to six societies each. Of this number 223 belong to one each; 140 to two, 57 to three, 24 to four, 11 to five, and 1 to six organizations; an average of nearly 2 each. These cover fraternal orders that furnish watchers for the sick when needed, pay a small sick benefit for a few weeks, and a funeral benefit sufficient to partially or wholly pay funeral expenses, and those paying accident and death benefits (insurance) of $1,000 and upwards. In the former class, the dues are small, varying from $2 to $8 or $10 per year, and in the latter, from $15

upwards according to the amount of insurance carried. The amount of dues paid by those reporting to the bureau, runs from $2 to $100 yearly. Seventeen report paying $2 yearly, twelve $3, twenty-one $4, thirty-two $5, forty $6, twenty $7, twenty $8, eight $9, twenty-seven $10, ten $11, seventeen $12, nine $13, eight $14, twenty $15, thirteen $16, five $17, twelve $18, one $19, nineteen $20, four $21, seven $22, three $23, four $24, eleven $25, three $26, three $27, three $28, two $29, ten $30, two $31, two $32, two $33, three $34, five $35, three $36, five $38, two $39, seven $40, one $42, two $43, four $45, one $46, one $48, one $49, four $50, one $54, one $55, one $56, two $60, two $65, one $73, one $75, one $85, four $100; average yearly dues and assessments of entire number reporting, $15.20.

Of the 455 belonging to fraternal organizations 328 report being entitled to sick benefits of from $2 to $66 per week. Thirty-five are entitled to $2 per week; thirty, $3; thirty-five, $4; ninety-four, $5; nineteen, $6; thirteen, $7; eight, $8; eleven, $9; twenty-eight, $10; four, $11; three, $12; one, $13; six, $14; seven, $15; two, $16; one, $17; three, $20; one, $24; two, $25; one, $27; two, $28; one, $30; one, $34; one, $36; one, $46; one, $66; average weekly benefits entire number entitled to, $6.64.

Of the purely fraternal organizations, the heirs of the members are entitled to death benefits ranging from $25 to $600; of the insurance class, the benefits vary from $1,000 to $17,000. Eleven report being entitled to $25; fourteen, $30; five, $40; forty-five, $50: three, $60; three, $75; two, $80; thirty-five, $100; two, $125; six, $150; ten, $200; three, $250; three, $350; nine, $500; fifty-two, $1,000; two, $1,050; six, $1,100; three, $1,200; two, $1,400; nine, $1,500; sixty-eight, $2,000; two, $2,025; two, $2,050; six, $2,100; three, $2,500; two, $3,000; two, $3,500; five, $4,000; two, $5,000; two, $7,000; two, $7,500; one, $11,000; one, $17,000; or an average of over $1,000. Ninety-three made no report of amount of death benefits entitled to.

OPINIONS OF WORKING MEN.

In answer to the request for an expression of opinion upon several labor topics suggested in the schedule sent to working-men, some three or four hundred complied more or less fully, from which quite a selection was made, which are herewith given. They are presented substantially in their own language in all cases, and while all manner of views are expressed, some diametrically opposite to each other, and a few altogether impractical, they are interesting as showing the trend of popular opinion upon very many topics of absorbing interest to the laboring classes. None know the hardships and adverse conditions under which many working-people exist better than the working-people themselves, and their views, although not clothed in polished rhetoric and above criticism in some instances, are worthy the consideration of all who believe in the rights of labor, and in the uplifting to a higher plane of life of the "bone and sinew" of our nation. Altogether, they form one of the most interesting chapters of this report.

7. I am not in favor of an eight-hour day at present; influence of trades unions on laboring classes good. Think a law should be made to protect laboring people from unjust trusteeing of wages; the law at present is rather severe; the displacement of labor by improved machinery, as regards my trade (type-setting) is considerable; am decidedly opposed to foreign immigration.

18. I think nine hours for a day's work preferable to eight, and fairer for both employé and employer. Trades unions are a necessity, and have been brought about by combinations on the part of capital; restriction of immigration is necessary; suppression of the liquor traffic, and a wise tariff law are essential to industrial prosperity. The effect of the present depression is disastrous in the extreme, leading in many instances to dissipation and crime.

262. In 1853, I began an apprenticeship at 50 cents a day. The hours

of labor were from 5 a. m. to 7; 7:30 to 12; 12:45 to 7:30 p. m., making 13 hours a day. The following year moved to Manchester, and during the year the mill help struck for 10 hours. The corporations compromised by reducing the number of hours to practically 11 per day, working hours from 6:30 a. m. to 12 m.; 1 to 6:45 p. m., first five days of week, and 9½ hours Saturdays; making total number of hours worked weekly 67¾. This continued in force until the 10 hour law was passed in 1887. All the mills start their machinery some 10 minutes before working hours, and the weavers who work by the cut, and are anxious to make good pay, work so much extra time. I have always advocated 8 hours for a day's work—8 for work, 8 for recreation, 8 for sleep. I have for years had an 8-hour escutcheon on my tool chest, and was once discharged from a shop for advocating 8 hours. I hope to live to see 8 hours constitute a legal day's work, but whether 8 or 10, the law relative thereto should be strictly enforced. The inventions in machinery have had much to do in displacing labor, and that the most skilled; for in a great many instances boys are employed to run machines where formerly skilled men were required. Trades unions are beneficial if rightly managed. Capital combines for protection, why not labor? The foreign element in trades unions largely destroys their usefulness. Immigration should be restricted. I believe in manual training schools, and in strict enforcement of our school laws.

300. In our town we have a good school and public library; no trades union. We are never paid our wages as long as we can be kept out of them, so we have to run in debt. I would gladly take ten per cent. less wages for weekly payments, and could save money by it.

489. The sooner eight hours is made a legal work-day, the better. Trades unions have the effect of keeping the working class in a hubbub all the time. If a union could be formed, backed by the government, and every man rated according to his ability as a workman, and of good character, it would have a good effect on sober, industrious laboring men; the other class deserve all the hard times they have, whether Yankee or otherwise.

492. An eight hour day is just. Without trades unions, the workingman is wholly under the control of capital. To benefit the laboring people they must combine at the ballot box in one party to put men in office who are in sympathy with the labor movement.

625. The majority of working-men would be satisfied to work nine hours per day, or even ten, if compensated accordingly. A law creating Saturday a half-holiday would be more satisfactory to working-men than an eight hour law. I believe in trades unions if properly conducted. Unfortunately they are often controlled by men who are constantly breeding trouble, and care for the members only so long as their money flows into their pockets. Foreign immigration should be restricted. The curse of our country is foreign pauper labor. Our

rulers are elected, our laws are made by the paupers of France, Ireland, Italy, England, Poland, China, Scandinavia, Hungary, Norway and Sweden. The offscourings and scum of these countries can come to our shores, and by remaining here for a time, take the oath of allegiance, and are permitted to cast their ballot, to help elect our rulers, help make our laws. There should be a law enacted, compelling all foreigners to reside in this country twenty-one years, before being allowed to vote. The Building and Loan Associations are doing a great deal to benefit and better the condition of our working people. Railroads should be controlled and operated by the government. There should be a law against trusts of every kind.

681. I believe in sixty hours for a week's work; the influence of trades unions among the laboring classes is very poor, except the fraternal assistance given in case of sickness, etc. There should be compulsory education for all voters, and only voters should be engaged in government employment, from common laborer up. Education to high school grade should be imperative up to eighteen years of age, even at the expense of the state for board, clothes, etc., and ample public money for public schools only, and for practical bread-winning instruction: free use of public halls should be given for free loyal or scientific lectures. All church property exceeding $50,000 in value should be taxed; the savings bank tax should be reduced. Stringent laws should be passed prohibiting the manufacture, sale, importation, exportation, and transportation of all intoxicating liquors, except by the state for legitimate purposes, and a heavy penalty should be fixed for neglect to enforce or for violation of the same; wipe out all public saloons, and more is done to improve the social, financial, and intellectual condition of the people than any other one or dozen remedies in the power of officials to enact or enforce. The present depression in business will benefit the laboring classes intellectually, and in other ways in the future, but it is a hardship for many of them now. The displacement of labor by machinery is possibly the outcome, to a certain extent, of the general abolishment of the apprenticeship system, and the consequent lack of skilled hand labor; manual training schools are desirable, and should be made available to all. The large foreign population is almost wholly responsible for ninety per cent. of the crime, misery, degredation, and political corruption of the country, and promiscuous immigration should be rigidly guarded against by law; that this country is entirely too free is a fact that must soon receive attention, or the prosperity and happiness of the laboring man is doomed. The laboring man that owns a home is, as a rule, an industrious, sober and patriotic citizen, seeking to improve the community in which he lives by respecting law and recognizing the rights of others; the laboring man without a home is largely irresponsible, often careless of his employer's interests, and in most cases saves little money. Towns and cities where the laboring classes largely own their

homes are the most desirable socially, morally, and financially, being comparatively free from labor troubles and other very unsatisfactory conditions.

871. I am strongly in favor of a legalized eight-hour day, and I am satisfied from my own experience and from the experiments in government and private factories in England that as much good work can be done in eight hours as in ten by a collective body of men. Trade unionism in this country is of little use. The cosmopolitan character of the population prevents unity. Strikers rarely win here. Every employer should be compelled to pay his workmen once a week, and not be allowed to alter the hours of work in winter to save gas, as is done in many instances; am strongly opposed to denominational schools. Railroad fares should be reduced and advantages given to laboring men who travel early and late every day over ordinary travelers. The effect of the present depression on the working class has been and will be such as to keep them longer in greater poverty. It furnished the excuse for cutting down wages which will never be raised again. The introduction of new machinery compels many people to seek a living at something else. Immigration should be restricted, and every man who comes to this country should be compelled to produce a certificate of good character and ability to earn his living at a trade. It is unfair to the native and respectable alien population that any country should be the dumping ground for the criminal and pauper elements of other nations. As regards homes for working people the municipal authorities of every city and town should pass a law that no house shall contain more than two tenements, and that not more than twelve persons shall be allowed to reside therein, unless all of the same family. Of course this does not refer to hotels and the like, but simply to homes for working people. The relations between employer and laborer in this country are not so amiable as across the water. There is a stolid independence amongst skilled laborers in the old country that is not seen here. Perhaps the fact that they are often backed by powerful and wealthy trades unions gives strength to their position as working men.

1084. Limiting the hours of labor should be done by congressional and not by states' legislation. Pass a state law compelling every voter to be able to read its constitution, under penalty of disfranchisement. Displacement of labor by machinery is but temporary. No more dumping of criminals, paupers and insane or outcasts of foreign countries on this soil.

1322. Undoubtedly an eight-hour day would give employment to more people, but whether it would be for their "social, financial or educational benefit," is doubtful. "Satan finds some mischief still for idle hands to do," and while shorter hours of labor might be of advantage to the laboring class in small manufacturing villages, it is doubtful if the increased rest (?) in our larger places would benefit them, as

a rule. The laborer who thinks more of his pay than he does of his work is the one who clamors the loudest for shorter hours with the same daily wages, and the most rabid advocate of trades unions. Manual training schools should be established as an auxiliary to the common school; for among the laboring people, whose children are a majority in all the schools of our large villages and cities, hand-training is equally as desirable and far more necessary than head-training. With our present immigration laws enforced we need not fear being swamped, as we have nearly been by a class of emigrants, ninety in every one hundred of whom are undesirable. When employers realize that their employés will do better work if better housed then we may look for better homes for workmen and women; as it is now, with rare exceptions, working people are looked upon a good deal like horses or oxen, merely as money gaining instruments. Coöperation is the solution of most of the problems in our industrial life where labor and capital are the factors—really their interests are identical, and until each sees that its interests are dependent upon the advancement of the other so long will each be suspicious of the other's efforts for self-improvement. In conclusion, educate, *educate*, EDUCATE.

1617. There are three principal causes for labor troubles: (1) Destruction of apprenticeship system. (2) Over-production by machinery. (3) Too many foreigners of low grade. There are multitudinous minor causes, as under-consumption; false theories of production; extravagant living; dissipation and gambling; fictitious values; watered stocks; speculation; inflation; trusts, syndicates, combines, pools, etc., and too many millionaires.

1620. Considering the condition of the working classes in manufacturing cities, which are composed principally of aliens of low moral standard, whose chief object during non-working hours is to kill time in ways most satisfying to their appetites, and as idleness begets vice in all forms, the more the common laborer is confined to his duties the less time he has to cater to his depraved tastes. But this does not apply to the large number of intelligent, self-supporting artisans, who may wish, after their day's work is completed, to spend their time at their homes in embellishing them or in cultivating their minds, and who, after the work of a ten-hour day, find that it is impossible to confine themselves longer to any task; for such, including myself, I would bespeak a shorter day of labor. In the printing trade the typographical unions have undoubtedly been of material assistance in maintaining rates of wages, but the increasing use of typesetting machines is driving them to the wall without power to resist. And so it must be in the end in all trades, with regard to rates of wages. The rate depends on the law of supply and demand, rather than on the belief of the employé that he is entitled to more pay. The great vice of humanity in all lands, the drinking habit, is the greatest foe of the laborer, and much good might be accomplished by strict legislation against it.

In fact upon this largely rest the "educational, financial, and social conditions" of working people. With our perfect educational system, it should be a crime for a child to be allowed to grow up in ignorance; but where so much is spent for drink that the earnings of children are required to support the family, it seems likely that many generations yet will feel the blight of ignorance due to the squandering of earnings in debauchery. To people who have been accustomed to rely upon steady employment and have spent their money freely in consequence, the hard times may prove a valuable lesson in economy, inducing frugality in the future. It seems to have been the experience, thus far, that all improvements in machinery have tended to the betterment of all classes of people by increasing production and lessening in cost all the necessaries of life. The immediate displacement of labor seems to be overcome after a time by additional industries. Manual training schools may give a child some insight into the use of tools, which he otherwise might not obtain, but their practical advantage must be limited, since the time devoted must be small, and the push and drive of actual shop work is lacking. The unrestricted immigration of to-day is certainly a serious menace to our American institutions and requires the attention at Washington of some of the sturdy Americanism which characterized that city in years gone by.

1875. Every boy desiring to learn a trade should be compelled to serve a five years' apprenticeship. The bakery business is greatly injured by boys, who, having worked a year or two, engage themselves for $6.00 or less a week. As we work from 75 to 80 hours a week, not counting Sunday morning, we should be glad to have a ten-hour day, to say nothing of eight hours.

1990. Eight hours for work, eight hours for recreation, and eight hours for rest. But to produce this state of affairs there must be a change in society. This change must be brought about gradually or things had better stay as they are. Better education and manual training should not only be within the reach of all young people, but they should be compelled, if mentally and physically able, to receive such instruction. Immigration must be restricted, if not wholly prohibited. Place the railroads and telegraph in the hands of the government, the same as the postoffice; under strict civil service rules, so that they cannot be affected by strikes and boycotts. Improved machinery is advancing toward the time when all work will be done with but little or no muscular effort on the part of man, but I do not apprehend that working people will receive anything but benefit from such a change.

2351. I have no sympathy for men that object to working ten hours a day. During the past year I have worked 504 hours extra time. As long as I live and have five mouths to keep filled I shall maintain the right to work for fifty cents a day if I can't get $2.50. If every laboring

man would discharge his duty to his employer faithfully, there would be no need of unions to attempt to regulate wages.

2390. We should have laws requiring that steam engineers pass an examination before a competent board of officials; to protect deposits in savings banks from wild-cat speculation; and to punish any individual or organization for interfering with a man's personal liberties relative to hours of labor, rate of wages, and working privileges.

2522. To set, by law, a limit to hours of labor, whether eight or four, is simply to hamper the general productiveness of a people. The number of hours should be a matter of contract between parties interested, subject to no provisions of law except such as apply to contracts. Put a protective duty of $500 per head on all imported laborers, and deposit the amount to pay asylum, poor-house, and law court expenses, as incurred by reason of the importation.

2921. The eight-hour work day is devoutly to be hoped for. Trades unions are all right in some respects; in others wrong. There should be coöperation between labor and capital, not antagonism. When a union dictates to a capitalist, or becomes unsympathetic to the employer's best interests, it errs. The application of the golden rule must be made, to rightly settle difficulties between labor and capital. Individual training in manual schools will do more for the rising generation than legislation for the laboring classes of this country. Foreign immigration should be restricted in this way: Allow only those to come to this free land, who will, before they are given the ballot, prove themselves sufficiently intelligent to read and write our language, study our laws, and acquaint themselves with American ideas of justice, liberty, and truth. The laboring men and women of New Hampshire ought not to fall into the same errors that have been committed in other parts of the land, by joining in ill-timed strikes. A faithful servant, in whatever calling, will be rewarded. The shirkers and croakers are not wanted in any army, certainly not in the industrial one. The wage-earners who are voters need to do a large amount of thinking, before they try to "revolutionize things." By all means send to the legislature men to represent labor, but be sure they are the right men, and the best men. Keep the public schools up to the highest possible standard, with the stars and stripes on every mast.

3046. A uniform eight-hour law in all the states is very desirable. Trades unions are a curse to working people. The ballot box is the best place to settle the labor question. Children should be sent to school until they are 18 years of age, and should not be allowed to take men's places in the workshops. Foreign immigration and the right to vote should be limited to those who can read and write the constitution of the United States in the English language.

3440. Eight hours a day would make men more contented, and give employment to a much larger number of persons. Trades unions are

not all that is needed among working men, but they are a means to an end. Coöperation in all lines among the working men, and less petty jealousies and selfishness would very materially aid them. Would like to see the government control telegraph, railroads, mines, and all large institutions at present controlled by a few monopolists. This plan has been successfully tried in New Zealand, as reported by the U. S. consul. Machines are greatly injuring the printing business in large cities.

3463. Under the present conditions of things, trades unions are a necessity. When doctors and lawyers, merchants and manufacturers, unite, workingmen must do likewise. Unions are generally discreetly managed,—when not, it is the fault of conservative members who neglect to attend meetings. Great ignorance prevails regarding unions. Walking delegates do not order strikes, as some think. Unjustifiable strikes are seldom endorsed by national officers, and local unions have no authority to act without their consent and financial aid. The fact that the best organized trades command the best pay and work fewest hours, is ample proof of the advantages of trades unions. The eight-hour day, with full pay, has been tested the past year by English manufacturers with perfect success, giving satisfaction to all parties concerned. It is sure to come in America in due time. Immigration should be restricted for a term of years; believe in government control of telegraph, telephone, and railroads, and in more legislation for the people generally.

3650. Eight hours is the proper number to constitute a day's work. Nearly as much work will be done in eight hours as in ten. Shorter hours will allow more time for self-improvement. The argument that men will spend more money foolishly, if the eight-hour system is adopted than they will under the present system, is without foundation. The man who fools away his money will do so, whether he works eight or ten hours. Trades unions accomplish a great deal of good for the wage earners. They do away, in a large measure, with the petty jealousies which usually exist among workingmen, by making them friends and brothers; through their influence working people become more efficient, through exchange of ideas, which would otherwise be withheld, and by showing to the world that union men are more desirable as employés, than those who are not; by securing work for their unemployed, looking after their sick, and advancing financial aid to those in need; by aiding in securing better wages, and social conditions for their members, and in elevating their education and moral standards. I do n't belive in strikes, except as a last resort, nor in lockouts. All differences should be settled by conference or arbitration. The laws of the land should be respected, neither broken nor evaded; if not right, they should be made so by proper and legal methods. Business men, in case of failure, should not be allowed to settle with their creditors for ten cents on a dollar, while the workingman is compelled to pay the full amount of his indebtedness. A trustee process should not cost

more than the bill, nor be served unnecessarily. Wages to the amount of one dollar per day should be exempt from attachment, especially in case of those who have families dependent upon them for support. Weekly payments should be compulsory on railroad corporations, as well as upon all others. Factories, etc., should be inspected, to see that steam boilers are not dangerous, that proper safeguards be placed around dangerous machinery, that sanitary conditions are good, that the law in regard to the employment of minor children is not violated. An employer's liability law is also needed. The principles of mechanics, political economy, and parliamentary law should be taught in our public schools. Manual training is also desirable. Foreign immigration should be restricted, and the restriction should apply to classes instead of nationalities or races. None should be allowed to land on our shores who are not law-abiding, self-supporting citizens of the country from which they migrate, and they should be compelled to take the oath of allegiance to the United States before being allowed to seek employment. The right of suffrage should not be granted except to those who can read, write, and speak the English language, and have an intelligent idea of the principles upon which our government is founded.

3671. The experience of all who work at manual labor proves that the ten-hour day is too long for the vigor of the average man, and leaves him too little time for rest and self-improvement. Boys generally are charmed with mechanical employment, and when learning a trade are usually content while there is a hope of advancement, even with small wages; but after apprenticeship, when they begin to realize that merit does not always insure good pay and permanency of employment, ambition usually receives a set-back, and a continuous round of ten hours a day becomes irksome, to grow constantly more so as health fails, and the once ambitious youth has approached middle life and discovered that he exists but to eat, sleep, and work. Quantity of production rather than quality (though both in a degree) is now demanded; workers are kept on specialties, because more can be accomplished in this way, thus reducing the worker to the condition of a machine, and making him discontented. With the number of unemployed constantly increasing, a situation is harder to retain; wages have a growing tendency downward; an employé is less independent of his employer, and is consequently more likely to be controlled by him in politics (and many are so controlled, according to my personal observation, some to the extent of utter cowardice). He is sometimes disposed to truckle to his employer or foreman, and is more apt to use underhanded means to oust some fancied rival among his fellow-workmen. In short, all these conditions make life very tiresome, and cause deterioration in the manliness of men. An eight-hour day is long enough for human endurance. It would give men more chance for needed rest, and for indulging in personal tastes,—like reading, boating, ball-playing, drawing, music, gardening, bicycling, or other harmless and decidedly

beneficial pursuits. Such opportunity would relieve the monotony of long daily toil which is detrimental to both mind and body, and cause men to be less discontented. It would also give employment to many now idle, thus increasing business to some extent. If the standard length of life is not to be shortened; if human constitutions are not to be shattered; if we are not to become a race of cynics, we must reduce the hours of toil, and that soon, and take the women and children out of our wretched factories.

3948. I believe in organized labor for mutual protection. The history of the wage-working classes has been but a record of constant struggle against oppression, and this has existed through lack of unity and confidence in each other as workers. There is a public feeling against "trades unions," and yet all society is bound together upon the same principle. There are ministerial associations, musical societies, press clubs, and commercial unions, yet no great outcry is made against them, although their objects are personal and professional advantage. It is said that laboring men have no right to regulate the price of their labor. Labor is man's individual property, and he has a right to sell it, and to fix the price for his own muscle. Inasmuch as capitalists, trusts, manufacturers, and boards of trade combine to protect and advance their interests, it becomes the duty of the laboring classes to combine and establish a price for their labor. An eight-hour day law would be of great benefit to the working classes as it would give them an opportunity to improve their education and social condition. The working people, as a rule, do not have time enough to secure an education and keep themselves well-informed. Many of them are very ignorant, and many of their expressions on the advisability of the eight-hour day, in the last report of the Bureau are enough to prove it. A laboring man who says he rather work ten hours a day than eight, must be either a rogue to himself, a cheat to his family, or else an ignorant person who does not know what he is talking about.

3971. I would be much pleased to work but eight hours a day. I don't know the English language, but the only thing I want is money and not work too much.

4010. Holding land for speculation is the principal cause of business depression and poverty. All taxes now paid directly and indirectly by labor and capital should be abolished, and land alone should be taxed its full rental value. That would be ample revenue for city, county, state, and national government. Under the single tax system no one could hold land unless they used it; then they could well afford to, as improvements would not be taxed. Land being taxed its full rental value, it would have no selling value and would be open always to those who desired to use it. Private property in land should be abolished. Labor unions may do a little good, but to raise wages in one trade is to attract labor to that trade and so in the end competition will force them down again, but under single tax system unskilled

labor could always find employment. Capital would constantly be opening up new natural resources. There is no end to human wants; give people a chance to satisfy those wants by labor. Give labor free access to land where all must live and all material must be drawn and the wage question will settle itself.

4043. A rigid prohibition of immigration for a period of 10 years from all sources, Canada included, would do more to solve the labor problem than any other one thing. The principles of trades unions are all right, but the trouble is to carry them into effect, with the country full of ignorant surplus labor that can be procured at any price.

4200. I believe in the establishment of an eight-hour work-day, as it will increase the chances for steady work the year round. The influence of trades unions among the working people has been productive of great benefit, for therein lies their only salvation from their present difficulties. I believe in legislation that will give organized labor the same chance in court as capital in case of a strike; where they won't be considered as organized conspiracies. The state should make every manufacturer maintain a reasonable standard of wages according to the amount of business done each year and the profits resulting therefrom. With increased wages will come education and the elevation of the workingman's social condition. The American workingman will work out his own salvation if given half an opportunity to do so. The effect of the present depression has been productive of great discontent and suffering among the working people, but it has one virtue, it has opened the eyes of the American people thoroughly for the first time. As to foreign immigration I believe it to be the greatest obstacle which the American workman has to contend with. The foreign element have gradually forced the American to the wall by lowering the standard of wages almost to a level with those of Europe. The government should prohibit foreign immigration for at least five years and give the working classes of this country a chance to recover from the effects of the cheap labor invasion from Europe. In looking over an old diary belonging to a relative who worked in the cotton mill about the year 1870, I find the wages for oiling machinery in the card room, which of course will be classed as unskilled labor, to have been $1.85 per day. On the same job to-day, they do twice as much work as then for the magnificent sum of 90 cents per day.

4539. The eight-hour work-day is a good thing if wages are not reduced below living expenses. Trades unions are beneficial if men will unite and not knife each other for temporary advantage to self. Education should be compulsory and parents should teach their children morality. Improved machinery is a help to all people if wealth does not take advantage and reduce wages. Wealth is selfish and will take advantage of improved machinery and thereby make it a curse instead of a blessing, as every improvement is good for all. There should be a tax on wealth and no discrimination should be made in

taxation. The laboring man should learn the power of the ballot and use it. Under the present condition of things his interests are not fairly represented in legislation.

5465. Eight hours is long enough to labor daily, although nine is not bad. Trades unions are a great blessing to the working people. If it had not been for them there would be no such thing as an eight hour day. The legislation that would benefit the working people most would be the abolishment of the contract and piece work systems, especially the latter. This is the greatest curse with which the working people have to contend. Abolish it once for all and their general condition would be vastly improved. Immigration should be restricted. The working people labor under a disadvantage under our present banking system. The government should own and control the banking systems of this country as it does the post-office department. Did we hear of any post-office employé being discharged or his wages being cut down the past year on account of hard times? No! Why? Because it is run by the people. Give us such a money system and we would have no bank failures in which the poor people are robbed of their earnings.

5609. An eight-hour work day would prove beneficial to the laboring classes, from the fact that more people would be employed and more time would be had for rest and recreation. The influence of trades unions among the laboring classes is beneficial for their own protection, for it is the only safe bulwark against which the employer may advance, but is finally compelled to recognize. I approve of the ports of this country being kept open for the reception of working people who wish to become honest and law-abiding citizens. Working people will look out for homes for themselves if they are given the opportunity, by wise legislation in the interests of the people, and not to the interests of capital which has already had more than its share of attention in our legislative bodies. The condition of the laboring classes can best be improved in giving them more leisure time, and this can only be secured by shortening the hours of labor. The effect on the working people of the present depression in business, is the lowering of the morals of the people by driving them into questionable methods for sustenance. Improved machinery is fast driving the laborer to the wall, through displacement of labor.

5629. An eight-hour law is not advisable. Steam boiler firemen and engineers should be licensed. To-day I am working for small pay, on account of cheap and inexperienced help hired to run steam power at the risk of other men's lives. I worked seven years' apprenticeship to get my trade, and now green hands are hired for small pay to run engines because there is no license law to protect me and others.

5675. I wish to protest against the inequality of wages, and hours of service in my own business as compared with other clerks. For instance—a drug clerk has to serve a three-years' apprenticeship of

from eighty to ninety hours per week at less than living pay, and then pass an examination before the board of pharmacy of the state he wishes to work in, before he can secure a good position, and this at much less pay than a clothing or dry goods clerk gets, who has three or four evenings a week, and Sundays, to himself, with only a financial responsibility and ordinary business training. In a word—drug clerks are overworked and underpaid for the service they render. I say this believing my condition is better than that of nine tenths of the drug clerks of New Hampshire.

5936. The time has not arrived for an eight-hour day. First give fifty-eight hours per week, then fifty-four hours, and then forty-eight hours and then the goal aimed at will be reached. The reduction of the hours of labor is the greatest boon that the legislature can confer upon the laboring people. Compel children to attend the public schools, eliminating all religious and political instruction, which belongs to the parents to give. The foreign element is driving the native out, slowly, but surely.

6154. I have never been in favor of an eight-hour law ; but think the fifty-eight hour law passed by the house of representatives in 1893, and defeated in the senate, would be as good a one as it is possible to enact. This would allow the laborers to commence at 7 the year around, and stop at 6 at night, for five days in the week, and Saturdays at 4 o'clock with an hour at noon. Give us that, and we'll ask for neither an eight nor nine-hour day.

6373. The hard times have entailed a great deal of suffering. Many of the worthy poor, if they could not get trusted for necessaries, would be forced to seek charity. If the working-man were only true to himself, and intelligently deposited his ballot, improvement of his condition would result. Shorter hours of labor, if universally adopted, would equalize competition. We want better schools, and accommodations, more wholesome and healthier reading in our public libraries, and, perchance, a little more up to date. Restrict foreign immigration, and a less crowded condition in the homes of the foreign element, thereby removing the cause of disease, breeding germs, etc. We want legislation against trusts and combines that undertake to regulate the cost of the necessaries of life, a tariff that protects, and does not play into the hands of monopolists.

6514. I believe in an eight hour law, restriction of immigration, government control of railroads, telegraph, and telephone lines, equal pay for same work, whether male or female; a state board of arbitration, Saturday half holiday, the employment of American labor on public works and on city contracts, and a strict enforcement of the child labor law.

6584. I consider ten hours a reasonable day's work; have no sympathy whatever with strikers; trades unions are a nuisance, as good men

have invariably to help out the lazy ones; the price of labor is the same as any other commodity, governed by supply and demand. Don't think we need any more labor legislation, there is a law prohibiting the employment of young children already. The depression in business throws a great many out of work, but think it only temporary. Machinery is a benefit to all classes. Do not favor pauper immigration. The building of homes is the best thing possible for the workingman.

6599. A law fixing a percentage that the employer should pay the employé in wages and giving him the privilege of investigating the books of any corporation, company, or individual employer, would go a long way towards settling the disputes between capital and labor, without recourse to strikes. It would enable the employé to know whether he was being treated fairly or not by his employer.

8303. There should be no law regulating hours of labor. That should be a matter to be settled between employer and employé. If everyone capable of working should work six hours per day the people would be better off than now. Let sectarians be taught to let our present school system alone, and strictly enforce the present laws. Count Tolsto says: "The best way to help the workingman is to get off his back." I say, also, teach the laboring man to get off his own back, as many of his ills are self-inflicted, aside from periods of trade depression which exist in all countries. Encourage the better class of foreign immigration. They are wealth producers, people who have left their own lands with a purpose. Did not the Mennonites, exiled from Russia, make a paradise of portions of our Western states, where previously there was a wilderness? Need I cite you to the farms of the Swedes in Aroostook county, Maine, and to their superb roads? If New Hampshire had colonies of such people on her abandoned farms, with state bounties for the largest and best flocks of sheep, we would soon settle the question of free wool by having the freest kind, namely, that which we ourselves raised, with the possibility of becoming exporters of that much valued product. The question of homes must ever rest with the citizen himself. Are we not all free and equal before the law? I admit there our equality ceases. If men of wealth are disposed to help their less fortunate fellows, well and good, but let not the laws of our state help to destroy the individuality of her citizens, as self-dependence is the bulwark of all true freedom in wisely governing the people.

8479. It is an undeniable fact that the social and intellectual condition of the laboring class in America is far above those of other countries. There are several reasons for this. America is a country of progress; the people are a laboring people; the government is indirectly in their hands. The use of labor saving machines facilitates production. Eight hours per day should constitute the hours of labor. This would give employment to more people and enough would be produced

to suffice for all. Eight hours per day or forty-eight per week would perhaps be better if divided in ten hours each working day for five days, leaving one day of each week a holiday. Trades unions are a help to workingmen so long as they are controlled by kindred spirits; but when they have at their head an idle drone who intends to get his living without work, they are a curse to workingmen and the entire community. I am a firm believer in "America for Americans," and think that laws should be enacted to prevent the immigration of cheap, ignorant, foreign laborers. The educational facilities of America are unsurpassed, but in "union there is strength." In no case should the school money of a state be divided between public and sectarian institutions. The parochial school is the Pope's weapon to fight American liberty. Postal savings banks, for the benefit of the laboring class, should be established at once. More and better homes for working people would do much to elevate the moral tone of the masses.

8498. I strongly believe in the eight-hour movement, and I recommend twenty-five cents per hour as wages for all laboring men. Labor should organize and pay a stipulated sum into a protective union in order to protect itself against capital. I recommend the eight hour movement for another reason. It will give the poor man a chance to get some enjoyment out of life, and educate himself in a manner befitting a free American. I object to cheap foreign labor, and men coming and taking all they can earn away out of the country, and never paying any taxes. I disapprove of machinery doing away with labor, but do approve of it in lightening labor. All public work should be done by citizens of the place where such work is done.

8515. Stop immigration, and also contract labor, such as Italians, Poles, Huns, etc. Employers in New Hampshire take advantage of American laborers by employing French Canadians, and they in turn injure us by their false economy. I would have "protection" in everything, pure and simple; a standard of living to force everybody in our communities to be civilized; as near "no monopoly" as possible; a system of education to govern appetites and passions; temperance, by some means, in all things, more especially in the use of alcoholic liquors. Any method which would achieve these things would benefit us all.

8606. Less hours would make less pay for a time. Supply and demand will regulate prices, and nothing else. Immigration is driving the day laborer to the wall. Very few skilled laborers come to this country. Good mechanics are 75 cents to $1.00 per week better off in England than here. Average pay $1.87 in England; here, $2.00. This is for skilled workmen, and the average pay in nearly all trades. Trades unions with Americans are good. The labor trouble has been caused by the foreign element in the unions. The American people have little trouble in settling differences, and will meet capital half way every

time. I never saw times so hard, since large enough to work, but that I could find something to do. The majority of working men think they can do only what they learned to do. The last year proved to the good observer that many men could have worked at some price if they had wanted to. Can cite many a case where there was work for all at some price, and the excuses given were,—"Too hard work," "too small pay," "not used to it," etc. I know of able-bodied men who were helped by the city, who were offered various kinds of work, but they always had some excuse for not accepting it. The laboring man could better their condition by throwing aside party politics, and uniting for their own interests.

8648. Laboring people are better off to work ten hours and get ten hours' pay, than they would be to work less hours and get less pay. The extra time they would have (a little in the morning and at night) would not do them as much good as the pay they would get if at work. If trades unions were controlled by Americans, they would have more influence than now. It is the foreigners that make the most trouble, and the cheap foreign labor that has reduced our pay. With protection, and restriction of immigration, there would be no need of trades unions. The foreign vote is dragging the American working-men down to the condition of those in the old country. Every voter should be able to read, in order to vote intelligently. Improved machinery has decreased the number of hands required to do the same amount of work, but its construction gives work to others, and goods are produced cheaper; hence, improved machinery is not so injurious to labor as many suppose. Until the laws which our legislature have already enacted are better enforced and obeyed, there is not much need of more legislation.

8840. The only redress the laboring man has is at the polls. When he learns how to vote intelligently, and knows what he is voting for, then he will better himself, and not till then. Labor unions are a farce. The ballot will settle all differences. Educate the laboring man, and you will better his condition.

8962. While eight hours might be better for some, for many it would be better if they were employed ten hours, and better for the public good. As to trades unions, I do n't want to dictate to others, nor have them dictate to me whom I shall work for, nor how much my wages shall be, or whether I shall work at all or not. My experience has been, it is better to be at work than to be idle, even if at reduced wages for a time. Restrict immigration, and require twenty-one years' residence in this country before being allowed to vote. In no case, should a man be allowed to vote, who cannot read his ballot.

9356. The eight-hour work day would be a benefit to the working-men, as they would have more time to do the necessary work around home, which in a ten-hour day they are unable to do. Trades unions

really benefit but few people, and do great harm, ordering their workmen frequently to strike, on a mere pretext or other, which, in some cases, lead to violence and bloodshed. The establishment of manual training schools would be beneficial, as well as evening schools. Associations for working-men, and libraries, would better the laboring classes socially. Improved machinery saves energy, but the old way gave people more labor. The energy lost on the work reacts in favor of the man, and really he is the gainer in the end. Foreign immigration tends to lower the wages of American working-men, for they get very little wages in the old country, and consequently are satisfied with little pay here.

9371. Eight hours work is enough for any one. Trades unions are all right. A better education would benefit the laboring people. Teach children never to get trusted; pay as you go. The trust system is a great evil, because so many people buy more than they would if they paid cash. The working people should improve their leisure time in reading and obtaining a better education. Inculcate in everybody, male and female, the habit of laying aside a little for hard times and sickness. I am in favor, most decidedly, of manual training, both at home and in schools. Restrict immigration; prepare at public expense good homes for those that have no homes, with farm attached. A strike should rarely be resorted to; study your work; make it valuable; be faithful to your employers; always rigidly upright; and by living up to these principles, the laboring man will be able to care for his family.

9794. An eight-hour day would be detrimental to the morals of the community. I am satisfied with labor laws as they now stand. The effect of the present depression upon the mass of laborers is bringing about ill-feeling toward capital, on account of the large per cent. of uneducated amongst the laboring classes; which ought to be relieved by legislating for evening compulsory schools, and manual labor in day schools. There is no time in a person's life when it is so easy to develop what genius he has, as when from twelve to fifteen or sixteen years of age. It is easier to learn a trade during those years, than after one has reached maturer years; habits formed at such a time generally last through life. Trades unions are no benefit to the country, as managed at the present time; but would be, if conducted on the beneficiary principle. With proper education the masses could have comfortable homes of their own. Improved machinery has worked no serious harm, as all men with any inclination to earn a living can find something to do. The best health is obtained through physical labor, performed in a proper way. Immigration should be restricted to those who can show ability to support themselves and those dependent upon them.

10,146. The worst we have to contend with is the French from Canada. They come here and work cheap, live cheap, save all they can

for two or three years, then go back to Canada and buy a farm. They injure American labor, and do n't benefit the country.

In addition to the foregoing, two hundred and seventeen expressed themselves in favor of the restriction of foreign immigration, two hundred and seven in favor of an eight-hour work day. one hundred and forty-one in favor of an eight-hour work day with ten hours' pay. Twenty-eight oppose an eight-hour work day, nineteen are in favor of a nine-hour work day, eighty-three are in favor of a ten-hour work day as at present: forty in favor of trades unions, seventy in favor of trades unions if properly managed, one hundred and twenty-eight are opposed to trades unions; twenty-five in favor of manual training schools, fourteen in favor of improved machinery, forty-eight oppose improved machinery.

TEMPORARY AID TO UNEMPLOYED.

TEMPORARY AID TO UNEMPLOYED.

By reason of the existing financial depression, the winter of 1893–4 passed into history as one of the most disastrous to the business interests of the country ever experienced. No section of country was free from the demoralizing influences of depressed trade, and, as a result, thousands of people were thrown out of employment, and much suffering was experienced. How to obtain work for the unemployed and relief for the absolutely needy became a serious problem in many localities. Appropriations were made by many cities to carry on public works in progress or in contemplation, in order to give employment to the needy and suffering. Charitable organizations urged generous contributions for purposes of relief, and many new associations were formed to help relieve existing distress. Many novel methods were employed in giving temporary relief to the unfortunate poor, and hundreds of thousands of dollars were disbursed in various ways throughout the country by associated charities, relief committees, and individuals, in relieving the wants of the needy.

In New Hampshire there was very little suffering through lack of employment, and in but a very few places in the state were unusual means taken to either provide work for the unemployed or to furnish aid to the unfortunate poor. In the early fall of 1893 several thousand people were thrown out of employment by the temporary closing of the Amoskeag mills of Manchester, but no serious distress was experienced from the fact that a large number of the employés were Canadians, and they embraced the opportunity to visit their homes across our northern borders during their enforced vacation, where many of them remained permanently, and others until such time as their services were

again required. Thus no unusual distress was felt by reason of the temporary closing of this mammoth corporation in the principal city of our state.

During the winter a loan of $25,000 was authorized to provide work for the unemployed in Manchester through the street department, and charitable organizations did considerable work in furnishing pecuniary assistance and nourishing food at a nominal price to the unfortunate poor for a time, but the aid extended over and above that usually given was comparatively small.

In no other city or town in the state was an appropriation especially made by the authorities to provide work for the unemployed or to assist them in any way. The city council of Laconia passed a resolution instructing the street commissioner to give employment on the streets and sidewalks or any public work to as many of the unemployed as could be prudently engaged without incurring an unreasonable expense, but nowhere else, aside from Manchester, was special action taken by city or town authorities for the purpose of furnishing work for those out of employment.

In nearly all the manufacturing towns and cities of the state many of the mechanics and others were employed on short time, and in some instances were entirely out of work for a few weeks more or less, but their natural thrift enabled them to tide over existing difficulties without serious inconvenience; hence but few unusual calls for aid were made upon town or city authorities. In many towns less was paid for aid to the poor than during the previous winter; and in other localities no material increase in expenditure for relief was made.

In order to ascertain to what extent the towns and cities of the state had been called upon to give assistance either in the way of furnishing employment to those out of work and unable to procure it, or direct aid to the absolutely needy, over and above the amount paid the year before, a circular, asking for the desired information, was prepared

and a copy sent to the selectmen of every town in the state, and to the city clerk of each city.

After a great deal of effort, the Bureau was enabled to procure data from all of the towns (including Wentworth's Location) in the state. The information presented is intended to show the number of persons out of work and unable to obtain employment during the whole or a part of the winter of 1893–4, number wholly or in part dependent upon charity for support, and the number who received temporary aid at public expense, during the same period, and the amount paid for temporary aid by the several towns and cities of the state over and above the year before. No attempt was made to procure the amount expended for relief by charitable organizations, which was undoubtedly large. Although computed with some difficulty, owing to the inability of town and city authorities, in several instances, to furnish positive information, it is believed that the results presented are approximately correct.

The estimated number of persons out of work and unable to obtain employment in New Hampshire during the whole or a part of the winter of 1893–4, as reported to the Bureau, was 2,580; number wholly or in part dependent upon charity for support, 1,580; number receiving temporary aid at public expense, 1,782; amount paid for temporary aid over and above previous year, $15,997.40. In view of the wide prevailing distress in all sections of the country, this is a remarkable showing, and it is doubtful if the working people in any other state felt the effects of the hard times less keenly, or received less public aid in excess of former years, than the laboring classes in our own rock-ribbed commonwealth.

A perusal of the subjoined tables shows that a larger sum was paid for extraordinary temporary aid in Nashua than in any other city of the state. The next largest sum was paid in Manchester. The towns and cities in which $1,000 and upwards were paid for extraordinary temporary aid were

Manchester and Nashua; $500, and less than $1,000, Berlin, Claremont, Concord, Keene, Pembroke; $100, and less than $500, Ashland, Barrington, Bartlett, Bedford, Bethlehem, Boscawen, Candia, Charlestown, Dalton, Derry, Epping, Farmington, Fitzwilliam, Goffstown, Gorham, Hillsborough, Hinsdale, Hooksett, Hudson, Laconia, Lebanon, Lyman, Milford, New Hampton, Rochester, Rollinsford, Salisbury, Somersworth, South Newmarket, Troy, Whitefield, Winchester, and Wolfeborough; less than $100, Acworth, Alton, Barnstead, Bradford, Bridgewater, Brookline, Campton, Clarksville, Columbia, Cornish, Epsom, Francestown, Franconia, Fremont, Groton, Hampton, Hampton Falls, Holderness, Hopkinton, Kensington, Lancaster, Lincoln, Litchfield, Londonderry, Lyme, Madison, Mason, Meredith, Merrimack, Milan, Moultonborough, Nelson, New Boston, Newbury, Newton, Northfield, Nottingham, Peterborough, Plaistow, Plymouth, Raymond, Richmond, Rye, Sunbornton, Shelburne, Stark, Stewartstown, Stoddard, Tuftonborough, Wakefield, Wilmot, Windham, and Woodstock.

The comments by the selectmen of the several towns in answer to question 5, following the tabulations, are especially interesting, as showing in brief the general industrial condition of our people during the winter of 1893–'4.

TEMPORARY AID TO UNEMPLOYED.

TABLE 82.—*Showing number unable to obtain work, number wholly or in part dependent upon charity, number receiving temporary aid at public expense, and amount paid for temporary aid during winter of 1893-4 in excess of previous winter.*

TOWNS.	Number out of work and unable to obtain employment.	Number wholly or in part dependent upon charity for support.	Number receiving temporary aid at public expense.	Amount paid for temporary aid in excess of previous winter.
Acworth			9	$8.50
Albany				
Alexandria				
Allenstown		25		
Alstead				
Alton			2	15.00
Amherst				
Andover				
Antrim				
Ashland	200	25	30	361.26
Atkinson	12			
Auburn	20	4	4	
Barnstead			2	40.00
Barrington		15	10	100.00
Bartlett			3	150.00
Bath				
Bedford	1	9	13	146.30
Belmont				
Bennington	50			
Benton				
Berlin	20	65	65	600.00
Bethlehem			6	375.00
Boscawen	175	100	85	205.25
Bow			6	
Bradford		1	72	40.00
Brentwood				
Bridgewater			1	30.00
Bristol				
Brookfield	12			
Brookline			45	17.35
Campton				17.00
Canaan				
Candia	250	20	20	100.00
Canterbury				
Carroll				

TEMPORARY AID TO UNEMPLOYED.

TABLE 82 (CONTINUED).—*Showing number unable to obtain work, number wholly or in part dependent upon charity, number receiving temporary aid at public expense, and amount paid for temporary aid during winter of 1893-4 in excess of previous winter.*

TOWNS.	Number out of work and unable to obtain employment.	Number wholly or in part dependent upon charity for support.	Number receiving temporary aid at public expense.	Amount paid for temporary aid in excess of previous winter.
Centre Harbor				
Charlestown		8	280	$140.00
Chatham				
Chester	60	1		
Chesterfield			6	
Chichester				
Claremont	75	125	35	500.00
Clarksville			2	41.00
Colebrook				
Columbia			3	30.00
Concord	100	25	25	750.00
Conway				
Cornish		10	6	25.00
Croydon				
Dalton		8	8	248.35
Danbury				
Danville	50			
Deerfield				
Deering				
Derry	10		20	250.00
Dorchester				
Dover				
Dublin				
Dummer				
Dunbarton				
Durham				
East Kingston			6	
Easton				
Eaton				
Effingham				
Ellsworth				
Enfield				
Epping		8	12	210.00
Epsom			12	77.50
Errol				

TEMPORARY AID TO UNEMPLOYED.

TABLE 82 (CONTINUED).—*Showing number unable to obtain work, number wholly or in part dependent upon charity, number receiving temporary aid at public expense, and amount paid for temporary aid during winter of 1893-4 in excess of previous winter.*

TOWNS.	Number out of work and unable to obtain employment.	Number wholly or in part dependent upon charity for support.	Number receiving temporary aid at public expense.	Amount paid for temporary aid in excess of previous winter.
Exeter		77		
Farmington				$194.26
Fitzwilliam	40	35	25	350.00
Francestown		3	3	41.85
Franconia		4	6	35.25
Franklin				
Freedom				
Fremont			6	10.00
Gilford				
Gilmanton				
Gilsum	60			
Goffstown	20	13	8	250.00
Gorham	10		2	184.92
Goshen				
Grafton				
Grantham		8	8	
Greenfield				
Greenland		2		
Greenville				
Groton		1	2	7.42
Hampstead				
Hampton	25	10	1	15.50
Hampton Falls	20	15	2	34.95
Hancock				
Hanover				
Harrisville				
Hart's Location				
Haverhill				
Hebron				
Henniker				
Hill	40			
Hillsborough			16	121.30
Hinsdale	100	30	30	449.88
Holderness	25	1	10	64.00
Hollis		1		

TEMPORARY AID TO UNEMPLOYED.

TABLE 82 (CONTINUED).—*Showing number unable to obtain work, number wholly or in part dependent upon charity, number receiving temporary aid at public expense, and amount paid for temporary aid during winter of 1893-4 in excess of previous winter.*

TOWNS.	Number out of work and unable to obtain employment.	Number wholly or in part dependent upon charity for support.	Number receiving temporary aid at public expense.	Amount paid for temporary aid in excess of previous winter.
Hooksett		88	88	$368.64
Hopkinton			9	25.00
Hudson			7	234.41
Jackson				
Jaffrey		2	10	
Jefferson				
Keene				603.20
Kensington		4	4	41.00
Kingston	75			
Laconia				240.66
Lancaster		25	75	40.00
Landaff				
Langdon				
Lebanon				162.72
Lee				
Lempster				
Lincoln		1	4	96.40
Lisbon				
Litchfield		1	1	13.00
Littleton				
Livermore				
Londonderry				75.00
Loudon				
Lyman			1	120.00
Lyme		7	4	56.00
Lyndeborough				
Madbury		2		
Madison		1		25.00
Manchester				1,818.69
Marlborough				
Marlow				
Mason			1	18.00
Meredith		23	75	27.50
Merrimack			1	6.00
Middleton				

TEMPORARY AID TO UNEMPLOYED.

TABLE 82 (CONTINUED).—*Showing number unable to obtain work, number wholly or in part dependent upon charity, number receiving temporary aid at public expense, and amount paid for temporary aid during winter of 1893-4 in excess of previous winter.*

TOWNS.	Number out of work and unable to obtain employment.	Number wholly or in part dependent upon charity for support.	Number receiving temporary aid at public expense.	Amount paid for temporary aid in excess of previous winter.
Milan			6	$77.50
Milford			4	133.20
Milton	20	10		
Monroe				
Mont Vernon				
Moultonborough			3	52.63
Nashua		252		2,257.27
Nelson			3	15.00
New Boston			5	93.57
Newbury			15	12.00
Newcastle	20			
New Durham				
New Hampton			12	150.00
Newington				
New Ipswich				
New London				
Newmarket				
Newport				
Newton	75	3	4	43.03
Northfield	20	8	3	60.00
North Hampton				
Northumberland				
Northwood			6	
Nottingham	80		4	62.00
Orange		1		
Orford				
Ossipee				
Pelham				
Pembroke			40	778.92
Peterborough	40	25	45	42.39
Piermont				
Pittsburg			8	
Pittsfield				
Plainfield				
Plaistow	10	2	2	73.97

TEMPORARY AID TO UNEMPLOYED.

TABLE 82 (CONTINUED).—*Showing number unable to obtain work, number wholly or in part dependent upon charity, number receiving temporary aid at public expense, and amount paid for temporary aid during winter of 1893-4 in excess of previous winter.*

TOWNS.	Number out of work and unable to obtain employment.	Number wholly or in part dependent upon charity for support.	Number receiving temporary aid at public expense.	Amount paid for temporary aid in excess of previous winter.
Plymouth			5	$50.00
Portsmouth				
Randolph				
Raymond	6	4	4	96.70
Richmond			1	10.00
Rindge				
Rochester	350	300	250	146.67
Rollinsford			9	125.00
Roxbury				
Rumney				
Rye	2	2	1	6.00
Salem				
Salisbury			11	123.48
Sanbornton			5	50.00
Sandown				
Sandwich				
Seabrook	50			
Sharon				
Shelburne		5	5	80.00
Somersworth				224.50
South Hampton	20	6		
South Newmarket	30	10	8	150.00
Springfield				
Stark			10	92.94
Stewartstown		2	2	75.00
Stoddard	3	5	5	14.14
Strafford				
Stratford		9	15	
Stratham		8		
Sullivan				
Sunapee				
Surry				
Sutton			9	
Swanzey				
Tamworth				

TEMPORARY AID TO UNEMPLOYED.

TABLE 82 (CONCLUDED).—*Showing number unable to obtain work, number wholly or in part dependent upon charity, number receiving temporary aid at public expense, and amount paid for temporary aid during winter of 1893-4 in excess of previous winter.*

TOWNS.	Number out of work and unable to obtain employment.	Number wholly or in part dependent upon charity for support.	Number receiving temporary aid at public expense.	Amount paid for temporary aid in excess of previous winter.
Temple				
Thornton			4	
Tilton				
Troy				$116.12
Tuftonborough		10	2	16.00
Unity				
Wakefield			1	7.50
Walpole				
Warner			15	
Warren				
Washington				
Waterville				
Weare				
Webster				
Wentworth				
Wentworth's Location				
Westmoreland				
Whitefield		15	16	178.27
Wilmot	4		4	7.00
Wilton				
Winchester	200	100	50	100.00
Windham			3	62.75
Windsor				
Wolfeborough	200		25	172.79
Woodstock				13.00
	2,580	1,580	1,782	$15,997.40

COMMENTS BY CITY CLERKS AND SELECTMEN.

In answer to the question "What measures (if any) were adopted in your town for securing work or obtaining relief for the unemployed during the winter?" the following replies were received. In towns and cities not here included, no comments were made.

ACWORTH. None necessary, Acworth not being a manufacturing town.

ALBANY. We have none but poor persons in our town. We have not a man worth $2,000, but still as poor as we all are, we manage to live; we get enough to do to get a living, and that is all. At times when we can't get work, we are considered honest enough to get trusted for necessaries to live on for two or three months at a time.

ALEXANDRIA. We know of no one unable to get work, or that received aid, except paupers that have been helped for years.

ALLENSTOWN. There has been a great demand for wood-choppers during the winter, and we doubt if any of the unemployed really needed to be idle. The women get work in the mills, so there have been very few idle people.

ALSTEAD. We have no persons here who are willing to work that cannot obtain something to do.

AMHERST. There are none able to work that we know of but what have sufficient employment to give them a living.

ANDOVER. All residents of Andover who desired have been able to find work. We have no town paupers. We have helped three at the expense of the county, to the amount of about $25. The same could have obtained employment if desiring it.

ASHLAND. Charity ball.

BARNSTEAD. We know of none who wanted work that did not get something to do. Our shoe-shops closed up for a few weeks, but as the help were mainly our townspeople, and from adjoining towns, it caused no suffering, as nearly all had homes and something to do there; consequently, all pulled through without aid. There were no measures adopted for securing work or obtaining relief for the unemployed during the winter.

BARRINGTON. This is a farming town, and in winter there are wood and lumber lots to cut. Everyone had a chance to cut or haul wood or lumber. The pay that a man gets here is small, but if he is well and willing to work he gets enough to live comfortably.

BELMONT. Our town has been highly favored during the past year. It has built a system of water works which gave employment to the laboring class till late in the fall. The hosiery mill ran nearly all winter.

BENNINGTON. There was no call for aid in our town.

BENTON. We know of no one who was out of work last winter.

BROOKFIELD. This is a farming community. Nearly all own a little place and so have been able to get along in the hard times fairly well. In the lumber business of this place, there was next to nothing done the past winter.

CANDIA. The unemployed were mainly those who own small farms or are young people who board at home; consequently, suffering was less intense than among those differently situated. We have several shoe manufactories that have been idle the greater part of the fall and winter.

CANTERBURY. This being mainly an agricultural town, but few laborers are employed here in the winter season. Most of them are engaged in a small way getting out wood and lumber, and we know of none unemployed from necessity.

CHESTERFIELD. As a rule the laboring classes have found work most of the time the past year. We have had no more than the ordinary amount of expenses on account of the worthy unfortunate.

COLEBROOK. Every man that was willing to work had something to do, and more help was wanted.

COLUMBIA. There was no call for aid the past year.

CONCORD. No official action taken by the city.

CONWAY. There has been no call for assistance except by transients. There was work enough for all who cared to labor.

CROYDON. No measures for relief were adopted as none were necessary.

DALTON. All had work that were willing to work for fair wages.

DOVER. There was no organized movement in aid of the poor during the winter referred to. Charitable institutions found ample opportunities for labor, but Dover as a whole suffered but little from business stagnation.

EAST KINGSTON. Most of the people living in this town are farmers and devote their time in winter to cutting wood and lumbering, which gives employment to all desiring work.

EASTON. There were no unemployed who desired work.

EATON. There has been no person during the past winter able and willing to work that could not find something to do.

EXETER. The cotton mill burned last year has been rebuilt, and several other buildings erected within the year, so that most of our people have had work that wanted it.

FRANKLIN. The condition of the laboring people during the past winter did not vary materially from previous years. There was no organization or particular action taken in the way of securing work or obtaining relief for the unemployed. There was no occasion for any.

FREEDOM. We have helped no one the past year, or in 1893, except in a few instances to abate taxes. All have had work more or less, but could have done double the amount had business been up to the average.

FREMONT. Our people are remarkably fortunate in having work, so that all have got along comfortably. There have been no cases of suffering from want or any unusual call for charity.

GORHAM. There was no need of any measures being taken for the relief of the unemployed, for we have none. There were no surplus laborers in this town the past winter.

GRAFTON. No measures adopted for there were no persons able to work but that could get employment.

GRANTHAM. All who desired to work found all they wanted to do. We furnished no aid on account of hard times.

GREENLAND. We know of no men but what could have got work, if they had desired it, at fair pay.

GREENVILLE. The cotton mills employ 400 hands. They were shut down nine weeks last fall and have been running half-time since February. The cabinet shop employs about 25 hands, and was shut down four months last year. There were no measures taken by the town to secure employment, as none applied for relief.

GROTON. No measures were taken as there was plenty of work for all who desired employment.

HAMPSTEAD. Our workmen are largely employed in shoe-making or working in shoe-factories, and were out of work probably half the time during the winter months; none of them, however, received any public aid.

HAMPTON. This is a farming town, with no very wealthy, and few very poor people in it, so the hard times have not been as severely felt as in some other localities. Quite a number of our people who depend on shoe making for a living during the winter, found it difficult to procure work at that trade, consequently were in a rather tight place; otherwise they got along very well.

HAMPTON FALLS. All who wanted to work had work found for

them, and all not able to perform manual labor were cared for. We have but few strangers in town, and pride ourselves that we care for what few poor there are without calling on the town for aid.

HILLSBOROUGH. With the exception of a few persons our people were able to support themselves during the time they were out of employment. There were no cases of actual distress, on account of being unable to obtain work, reported to the authorities, and no concerted measures were adopted to secure work for the unemployed.

HINSDALE. Nothing special was done here in the way of relief. Our mills were run a greater portion of the time, affording employment to those desiring it.

HOLLIS. We have only one person wholly unable to support himself. All our people can find something to do. They are mainly farmers and do not rely on manufacturing industries for a living.

HOOKSETT. We procured work for three men who had families. Sickness caused most, or at least a part, of the expense for temporary aid. The French, with large families, who work in the mill, could not earn enough to pay for the ordinary comforts of life.

HOPKINTON. We have quite a number of mechanics and laborers here that have but little employment, as a rule, in the winter months, but they are self-supporting, and the majority own their homes.

JEFFERSON. There is so much lumbering done here in the winter that everyone can get work that wants it.

LACONIA. None except what was done by the churches and benevolent associations. A resolution was adopted by the city council, instructing the street commissioner to give employment on the streets and sidewalks or any public work, to as many of the unemployed as could be prudently engaged, and not incur an unreasonable expense.

LEBANON. When our mills closed, or reduced the number of workmen, they left town largely. Some work was furnished by the town to the unemployed.

LEMPSTER. This is almost exclusively a farming town. There has been only the usual amount of pauper expenses, probably less than $50, all of it occurring since making our last annual report.

LINCOLN. Four of the five who received aid were lumbermen, who came from Canada last fall, and the other had been an inhabitant of the town three years, and was also from Canada.

LITTLETON. We have had no unemployed that were such from necessity. We are building 7,500 feet of sewers, a new town building for offices, hall, etc., and contemplate a new iron bridge.

LONDONDERRY. We have had no calls for temporary aid from our own people during the past winter, over that of ordinary winters. The expense for food and lodging to transient poor passing through the town has been more than usual; about $75 in round numbers. A

noticeable feature was the fact that they were nearly all young men in the prime of life, quite well clothed, fair appearance, and seeking employment, but finding none.

LYMAN. The only person receiving temporary aid had the misfortune to break his leg while at work in the woods.

MADBURY. No measures were adopted by the town. Our farmers are obliged to go to other towns for help, both in doors and out.

MANCHESTER. A loan of $25,000 was authorized to provide work for the unemployed through the street department, but otherwise no official action taken.

MARLBOROUGH. No unusual steps were taken to provide relief. Tramps were a little more numerous than usual, but we paid only $20 for assistance in that direction.

MIDDLETON. The business of the people of this town generally is farming. We have no town paupers, and no one has received assistance from the town the past winter, nor from public charity, so far as we know. We have heard of no case of destitution or suffering on account of hard times the past winter.

MILAN. There was no trouble experienced by our own people in getting work during the winter, but wages were about 20 per cent. less than they have been at any time for the last 33 years.

MONROE. Monroe is a farming town.

MONT VERNON. This is a farming town and nearly all desiring work had employment on the place where they lived, or worked in the woods for their neighbors.

NEWINGTON. The recent financial depression did not materially affect our community. Our laboring people were, as a general rule, employed and able to get through the winter without aid from any source.

NORTHUMBERLAND. There has been plenty of employment for all who desired to work the past winter. Wages were cut down somewhat, but there was work enough in the woods and in the saw-mills in this vicinity, some of which have been running all winter. The selectmen have had no calls for assistance from residents of the town, but have had rather more applications than usual for lodging and meals from tramps.

NORTHWOOD. No measures were taken by the town to secure work for the unemployed, as there was no need of so doing. This is a farming, lumbering, and manufacturing town, and there are but few people here but what could obtain employment the whole or a part of the time, were they so disposed.

ORFORD. Orford is a farming town. But little outside help is employed. There has been no extra public expense on account of unemployed persons the past winter.

PELHAM. There have undoubtedly been persons that have not had steady employment all of the time during the past winter, but all have had work a part of the time, at least, and none have applied for help from the town.

PITTSFIELD. This town has been remarkably free from calls for charity during the past winter.

PLAINFIELD. As this is not a manufacturing town, there were none out of employment for any length of time, and there has been no call for aid.

RINDGE. Conditions have called for no unusual methods.

ROCHESTER. Concert was given during the winter, and some $300 was raised for purposes of relief.

ROLLINSFORD. Mills have been running full time, and no more were out of employment than usual.

SALEM. We have not had a single application for work or temporary aid the past winter or spring.

SALISBURY. There was no one in town last winter able to work but what could get it.

SANBORNTON. This is a farming town, and is in no way affected by the conditions of the times. Able and willing farm-hands readily find work at fair pay. We have no town paupers at present; a little transient aid has been furnished; nothing unusual.

SANDWICH. If they will work, all can find enough to do.

SOMERSWORTH. The situation here for the past year has been much more favorable than in most other places in the state, and the severest effects of the hard times have not been felt in this city; consequently there has been but very few persons who, desiring employment and having had regular work, have been entirely deprived of same for any considerable period during the year. No measures were taken for securing work or obtaining relief for the unemployed during the winter, as the condition of affairs has not been urgent enough to call for it. Whatever individual cases of pauperism there have been, were met by county and city authorities with relief. Strange as it may seem, $300 less was paid by the county for aid to the poor from this city than for the year before. Working people have not earned so much money (by a goodly percentage) during the past year, as for several years previous, and many have been obliged to figure to "make both ends meet." Some have even actually "run behind." Nevertheless, there have been very few cases of actual destitution and suffering arising from non-employment among those who desired to be employed.

SOUTH NEWMARKET. Not any outside of winter work upon the highways.

SPRINGFIELD. We rendered temporary aid to one family, but not on account of lack of employment; the father got injured working in

the woods. We are more troubled with a class of men who are not willing to work except for high wages. They get so much provision for a dollar that they feel independent.

STARK. No steps were taken to secure work for anyone for there was an opportunity for all to work who wanted to. The families helped were sick, and aid was furnished until they were able to go to work again.

STEWARTSTOWN. Not any, for there was and is at the present time a demand for common laborers at a fair figure; and if any person has remained idle it was from inclination so to be, which is not uncommon in this section.

STODDARD. We had but three more persons than usual that received aid on account of the hard times, except an unusual number of tramps that were furnished lodging and two meals each.

SULLIVAN. As this is a farming town we have no unemployed people and no poor receiving aid.

SUNAPEE. Business has been very good in Sunapee the past winter, and none have suffered for lack of work or want of food.

SUTTON. None were unable to obtain employment during the winter.

TAMWORTH. There was sufficient employment for all disposed to work.

THORNTON. There was plenty to do for all who had a disposition to work.

UNITY. No one has been unable to obtain employment, and none have received aid aside from county and town paupers.

WARREN. There were no idle persons in our town, for there was plenty of work for all that wanted employment.

WENTWORTH. This town has no large manufacturing industries, and hard times do not deprive farmers, who own their farms, of work.

WENTWORTH'S LOCATION. There was enough work to keep all employed, and good wages were paid.

WHITEFIELD. There was work for all who would go into the woods and chop, therefore no one was idle for lack of work of that kind. Nearly 100 tramps received attention, some of whom were looking for work, and others not.

WOODSTOCK. We have helped a few persons who claimed to be in search of work, but not one of our own townspeople.

STRIKES AND LOCKOUTS.

STRIKES AND LOCKOUTS.

The earliest recorded strike in America is said to have been entered into by the bakers of New York city in 1741. They struck for an increase of wages, "combining not to bake bread but on certain terms." The case was brought before the courts, and tried on a charge of "conspiracy not to bake till their wages were raised." The trial resulted in conviction, but it does not appear that any sentence was ever passed.

In 1796 and 1798 there were strikes by the shoemakers of Philadelphia for an increase of wages, both of which were successful, after trial in the courts.

What has generally been conceded to be the first strike in the United States occurred in New York city in November, 1803, and was known as the "sailors' strike." This was for an increase of wages by the sailors of the city, who paraded the streets and compelled all sailors who would not quit work voluntarily, to join them. They were dispersed by constables, who arrested their leader and jailed him, and the strike terminated unsuccessfully.

Prior to 1860 strikes were comparatively infrequent. Those that occurred were entered into mainly for the purpose of increasing wages and lessening the hours of labor. As early as 1832 there was a strike of carpenters in Boston for a ten-hour work-day, but although unsuccessful they set the ball a rolling that eventually led to the adoption of a ten-hour law throughout the country. In New York and several large cities the stone cutters were successful in strikes for ten hours as early as 1835. In June of the same year the city council of Philadelphia resolved "that the

hours of labor of the workingmen under the authorities of the city corporation shall be from six to six during the summer season, allowing one hour for breakfast and one hour for dinner," and some institutions not only granted the same reduction in time, but also advanced wages from eighty-seven and one half cents to one dollar a day, agreeing that "the wages now allowed being manifestly too scanty to supply all the wants of the laboring men," etc. During the same month the employés of a lamp and chandelier manufactory made demands for the ten-hour system, which were promptly acceded to, and in reply the firm said: "We hereby comply with your request, it being our candid impression that if a man works ten hours a day it is all sufficient, and more especially in the summer months."

A large number of working women employed in various trades in Philadelphia met to form a scale of prices, asking such advances as would enable them to live with some degree of comfort. The master binders "considered the cause of the laboring class of females as one whose claims were founded on the immutable principles of justice and humanity, and deprecated the course of those who, for their own gain or private interest, would, by their tyranny and oppression, if possible, drain the last drop of blood, and then grudgingly give an acknowledgment, much less an equivalent;" and resolved that "$3.00 per week is the least amount of wages those possessed of the practical principles of humanity could offer; that less is unjust, inhuman, and oppressive."

Strange sounding are some of the causes which led to strikes in early years. In 1817, a ship-builder of Medford, Mass., determined to abolish the grog privilege customary in those days, which required that rum should be furnished to workmen at certain times during work hours, and several men refused to work under such extraordinary treatment. They finally gave in, however, and a ship was built without the use of liquor in any form—probably the

first in the country. In July, 1836, the French Canadians employed in building a dam in Maine, struck because they were not allowed to smoke during working hours. In June, 1839, there was a strike of section hands on a railroad in Pennsylvania for an increase of wages, and a demand, in some instances for more whiskey, the allowance being one and one half pints per day per man, dealt out in nine potions.

One of the earliest, if not the first strike in New Hampshire, occurred in Dover in 1838, and, strangely enough, was participated in by women. A number of factory girls struck against a proposed reduction in wages, and showed their indignation by placarding the fences of the mill-yard with rhymes composed for the occasion, expressive of their feelings. The result of the strike is not recorded.

The second strike of any importance occurred among the cotton operatives in Manchester in 1855. The employés struck for a reduction of hours, and was general in all the mills in the city, but resulted unsuccessfully. The help were employed 12½ hours per day. It may be interesting to note that in 1830 the working hours of all mill operatives in New Hampshire were 14½ per day; in 1835 and 1840, 14 hours; in 1845, 13½ hours; in 1850 and 1855, 12½ hours; from 1860 to 1880, machine-shop, dye-house hands, picker, and dresser hands were employed 10 hours per day, and other classes of mill operatives 10 5-6 hours.

Prior to 1880 but very few strikes occurred in New Hampshire. In 1880 but one strike is recorded, and in the six years following but twenty-five occurred, according to the third annual report of the United States commissioner of labor, which covered the strikes and lockouts in the United States for those years. In January, 1881, there was a strike of 100 weavers in Suncook against a reduction of wages, which lasted two weeks, involving a loss of $2,000 to the employés and $8,000 to the employers, and resulted

unsuccessfully. Sixty-six hours constituted a week's work, and the average daily wages were reduced after the strike from $1.50 to $1.00 for males, and from $1.35 to $0.90 for females.

In July of the same year there were two strikes of stonecutters, one for adoption of a fixed scale of prices and the other for recognition of the union. One establishment was involved in each case, but the money loss to either employé or employer was comparatively small. The strike in each instance lasted but a week; the first was successful and the latter unsuccessful. Fifty-nine hours constituted a week's work before and after the strike, in which but thirty persons engaged.

No strike is recorded in 1882. In April, 1883, there was a strike of lasters in Farmington, for an increase of wages, which lasted for two months, and resulted unsuccessfully. One establishment and twenty-eight persons were involved, and the strikers suffered a reduction of fifty cents a day as the result of their action. Fifty-nine hours constituted a week's work.

In July, 1883, there was a general strike of telegraph operators and linemen throughout the country, in which many in this state engaged. The object of the strike was the "abolition of Sunday work without extra pay; reduction of day time to eight hours; equalization of pay between sexes for same work; universal increase of wages." The strike lasted a month and was unsuccessful, the strikers resuming work at same pay and same number of hours, namely: Day men, sixty-three hours; night men, forty-nine hours; average, fifty-six hours weekly.

The year 1884 was barren of strikes in New Hampshire.

In November, 1885, there was a strike of 110 boot and shoe employés in Rochester for an increase of wages, which lasted two weeks, and resulted in part successfully. The strike was ordered by labor union, and $12,000 in

wages was estimated to have been lost by the striking employés.

A strike involving eighteen lasters occurred in Concord in November, 1885, which came to an end unsuccessfully after five weeks' duration. The object of the strike was an increase of wages and was ordered by the lasters' union. The strikers were not re-employed.

Fifty lasters in Pittsfield struck for an increase of wages in December, 1885, at the behest of the lasters' union, and after a four weeks' struggle, were partially successful in their demands.

In April, 1885, forty coopers of Derry struck voluntarily for an increase of wages. The strike lasted a month, during which time the one establishment involved was closed. The strike was partially successful, and work was resumed at a slight advance in wages.

A successful strike for an increase of wages was entered into by twenty cigar makers in a single establishment in Manchester in August, 1885. The strike was ordered by the cigar-makers' union, and lasted three weeks.

The year 1886 seemed to be prolific in strikes, for more occurred in that year in New Hampshire than in all the years prior to that date. Nearly all were of short duration, and were hardly known outside of the limits of the city or town in which they took place.

In February sixteen lasters of Salem struck for an increase of wages, and after a month's time it proved a failure. In June a strike of the stitchers was ordered in Dover on account of the discharge of an employé, which resulted unsuccessfully at the end of four days. The strikers were all females, and numbered 138 persons. During the same month a strike involving twenty-five lasters in Exeter, was ordered, the object being to obtain recognition of union. The strike lasted seven weeks and resulted unsuccessfully. The strikers were not reëmployed. In July 110 lasters in Rochester struck because of employment

of non-union men, but their efforts availed them nothing after four weeks' idleness. Three hundred weavers in the cotton mills of Manchester struck for an increase of wages in March, and after three weeks, were successful in their demands. The cost in wages to employés was $66,300. A strike involving the same number of cotton mill operatives occurred in Rollinsford in August. The object of the strike was for a uniform scale of prices and against deduction for imperfect work. The strike was ordered by the labor union, lasted eleven days, and resulted unsuccessfully. During the same month there was a strike of a dozen machine shop employés at Rollinsford for an increase of wages. Only one shop was involved, and after two weeks time, the demands of the strikers were complied with.

In February, 1886, a strike occurred among the employés of the axle works at Penacook for the purpose of obtaining recognition of the union. Seventy-five persons were involved, and the object of the strike was attained within a week's time. A dozen moulders in a stove foundry in Salmon Falls and Great Falls struck for an increase of wages in May, and after three days were partially successful in their efforts. A few railroad employés (coal-heavers) in Nashua struck for an increase of wages during the same month, but were unsuccessful. The strike lasted but a day, and the men suffered reduction of wages instead of an increase.

The employés of the two spool and bobbin factories in Dover went out on a strike in August, one for reduction of hours of labor and semi-monthly payments, and the other for a reduction of hours. Neither was successful, as new help was substituted for many of the strikers. The strike lasted but one day. A strike of fourteen weavers occurred in Boscawen in April on account of the discharge of an employé and for recognition of union, and after a struggle of over three months, the strikers were compelled to abandon their effort, as new hands from elsewhere were

employed in their places. A strike of thirty weavers in Dover occurred during the same month against a reduction of wages, which was partially successful after a single day out.

The United States department of labor, which made the subject of strikes and lockouts in the United States for the years 1881 to 1886 inclusive a subject of research in its third annual report, and also gave a resumé of strikes in earlier years, is now engaged in completing the record to the present time, special agents of the department being scattered in all the states of the Union, including New Hampshire, in collecting data for the work. In view of this fact no attempt has been made to secure a record of strikes in the intervening years to and including 1893.

Without doubt the greatest labor struggle ever known in the state, occurred in Concord in May, 1892, when, after considerable parleying between the stone cutters and their employers upon points at issue regarding bill of prices and other matters appertaining thereto, the New England Granite Company and other firms in the city and elsewhere closed their doors and threw hundreds of men out of employment, not only in New Hampshire but throughout the New England States. No settlement of the trouble was effected for months, but eventually compromises were made, and in all but a half dozen places, the lockout was brought to an end.

During the year 1894 there were several strikes in the state, but none of long duration. In a very few instances strikes have not been declared off, and probably never will be, as new help was employed to take the place of the strikers, and but little interruption in business was experienced by the establishments in which said strikes occurred.

A record of the strikes occurring in New Hampshire in 1894, as furnished to the bureau upon blanks provided for

the purpose and forwarded to both parties interested, and compiled from newspapers, is herewith given. In only two or three instances was any attention paid to blanks or letters sent to manufacturers where labor troubles occurred, hence the information given is largely from the side of labor itself, which is without doubt, however, fairly stated. If any inaccuracies or overdrawn statements are apparent, it is not because the opposite parties interested had no opportunity to present their side of the argument. The fullest information from both employés and employers interested was desired by the bureau, that no injustice should be done any one.

CONWAY.

A strike of granite cutters occurred in Redstone, July 30, in which 150 employés of the Maine and New Hampshire Granite Company were involved. The strike was ordered by the Redstone Branch of the Granite Cutters' and Quarrymen's Union, and was caused by reason of the non-payment of wages on the regular pay-day as agreed upon and the withholding of several weeks' pay. Notice was given the firm that unless four weeks' pay due the men was paid on July 28, work would be suspended on July 30. Payment not being made, the men went out and the works were closed. After four days, payment of wages was made as demanded, and work was resumed. Although successful in their demands, 75 men lost their situations as the result of their action. No new men were engaged to take the place of those discharged, the force being merely reduced that number. From the information received it seems that an agreement was made on November 10, 1892, between the union and the firm, that payment of wages would be made on Thursdays, once in two weeks, the firm to have two weeks' back time in which to prepare its accounts. This was complied with, and payment of wages was made in accordance with the agreement until August,

1893, when the firm desired a postponement of a few days owing to the stringency in the money market. This was cheerfully consented to by the union until February, 1894, when the firm shut down on account of lack of work. Work was resumed in May following, and when pay-day arrived the firm failed to make payment, and a postponement of ten days was made without consent of the union. This irregularity continued to July 26, when two payments became due. The union then voted that unless the two payments (four weeks' wages) were paid on the 28th, work would be suspended on the 30th. The firm paid two weeks' wages on July 28, and informed the union that if it insisted on the men being paid on regular pay-days the number employed would have to be greatly reduced. It offered to compromise by asking the men to give the firm thirty days' time, or in other words, withhold wages for that number of days, but the proposition was rejected by the union, and as the four weeks' pay demanded on July 28 was not forthcoming, the men quit work on the 30th. On August 3 the firm paid the wages due the men, and work was resumed, with the probability that wages would be paid on regular pay-days in the future. The force of men employed was reduced 75 in number, as herewith indicated.

Dover.

Fourteen stitchers in the employ of the Seam Improved Shoe Company struck March 1 on account of non-payment of wages, the help demanding weekly payments. An amicable settlement was made, and the strikers returned to work March 13. On April 18 the stitchers and cutters again quit work owing to inability to procure wages due them. Two of the employés sued the firm and received their wages, but the remainder were more lenient, and after two or three weeks the shop was closed and the firm discontinued business. Nearly forty men were em-

ployed by the firm, and they claimed that from $5 to over $100 each was due them in wages.

On April 26 the employés of the bottoming department at the Charles H. Moulton shoe shop voted to go out on a strike, against a reduction of wages amounting to from 15 to 33 per cent. The next day the finishers and employés in the sole leather department joined the strikers. The claim made by the firm was to the effect that competition made the reduction necessary. The superintendent induced the employés to remain at work until Mr. Moulton could be visited in Boston, and an effort made to avoid the strike, but he was unsuccessful in his mission, and the strike was prolonged indefinitely. The shop was re-opened May 7, and an opportunity was given the strikers to return to work at the reduced prices, but very few availed themselves of the privilege.

The Cocheco Manufacturing Company, manufacturers of cotton goods, shut down their mills July 31, owing to depressed trade. On August 20 notice was given that the mill would resume business on August 27, and also of a 10 per cent. reduction per 100 hanks in wages. When the mills opened on above date 42 spinners refused to go to work, and in the afternoon of the same day orders were given to stop the looms in a portion of the works, which threw others out of employment. Two or three days prior to the shutdown the following proposition was submitted to the corporation by a committee from the mule spinners' association, as follows: "First, we are willing to take a further vacation of two or four weeks in preference to a reduction of wages; second, we will accept the same price as offered to the Fall River spinners; third, we are willing to leave this matter in the hands of a committee of three good and honest citizens of this city, you to choose one, we to choose one, and they to choose the third." The answer was "no" to each proposal. For weeks no change occurred in the attitude of either the corporation or the

strikers, many of whom left the city and procured work elsewhere. In the meantime efforts were made by the strikers to effect a settlement, but inasmuch as the agent of the mills declined to receive any committee from the mule spinners' association, the services of Samuel Ross and Thomas O'Donnell, secretary and treasurer respectively of the National Mule Spinners' Association, were called into requisition, and through their efforts the corporation, through its agent, agreed to meet a local committee with a view to arranging a settlement of the trouble existing between them. The meeting was held, but no satisfactory agreement was reached. Terms of settlement requiring concessions by both parties were submitted, and at a special meeting of the mule spinners held to consider the same, the following proposal was drawn up and submitted to the agent of the mills:

DOVER, N. H., Nov. 14, 1894.

Mr. John Holland:

SIR—We, the mule spinners of Dover, at a special meeting held for the purpose of considering your terms, as stated to the committee that waited upon you,—

1. We have decided finally that we will go to work providing that every man gets his own work back, if such work is being run.

2. That all work that may be started hereafter—the men that formerly run such work shall have the privilege of having such work, if they so wish.

3. That we have the privilege of sharing the work with those men left out, until such time as their work is started or they get another job.

4. That the boys that stayed out with us be given work, and their own work, if possible.

5. On these conditions we decide to return to work, although we are not getting for our labor what we ought to.

COM. MULE SPINNERS.

This was agreed to by the agent, and the strike was declared off December 10, after a struggle of over four months. During the strike twenty-four new hands were employed, but the work in the mule rooms and elsewhere was more or less interrupted during the entire time. The

outcome was the acceptance of five per cent. reduction in wages, with stipulations as above indicated. The firm reported average wages before strike, $11.28 per week; after strike, $10.72.

FARMINGTON.

On December 2, a majority of the lasters in the employ of Wallace, Elliott & Co. were discharged for refusing to work for a reduction in wages of 15 per cent. and upwards, and on the following day the remainder were called out, and subsequently it was officially announced by the Lasters' Protective Union as a lockout. The citizens of the town became interested in the matter, and an effort was made to settle the trouble by arbitration. After a few weeks an agreement satisfactory to all parties interested was reached, and the strikers resumed work January 15, 1895.

LACONIA.

In January, 1894, the knitters in the employ of the Hodgson & Holt Manufacturing Company received a cut in wages. On September 20 they demanded an increase to their former wages, and upon being refused they quit work. In a day or two, however, they returned to work without a change being made in wages.

LONDONDERRY.

The lasters in the employ of C. A. Benson & Co., struck for an increase of ten cents a case, April 30. Armenians were hired to take the place of the strikers, and some trouble ensued between them. After a week's time, however, the strike was declared off, and the men returned to work at increased wages.

MANCHESTER.

On March 3 the painters and decorators' union asked that nine hours constitute a day's work on and after May 1.

Owing to depressed trade it was deemed not advisable to insist on the reduction in hours, but it was generally understood that the nine-hour day would be conceded as soon as business improved.

The cutters and trimmers at Kimball Brothers' shoe shop went out on April 2, owing to having received a notice of a reduction of from 20 to 25 cents a day in their wages. A committee from the Shoe Cutters' Assembly was authorized to consult with the firm, and after a few days' deliberation it agreed to allow the men to return to work at their old wages, which was not in excess of the average paid elsewhere. Some fifty employés were involved in the strike, which was brought to a successful issue in a week, work being resumed April 9. The shop was closed during the trouble.

On April 16 the stitchers and male help, to the number of 150, in the making room of Kimball Brothers' shoe factory, struck against a reduction of wages, varying from 10 to 20 per cent. The strike caused a shutdown of the establishment, but within ten days, after considerable parleying, the strike was brought to a close, the strikers being successful in their demands for a restoration of their wages to the old rates. At the time of the strike but few of the employés belonged to a labor organization, but immediately following nearly all became members, and it was through its influence that former rates of wages were restored. Complaint is made that wages in the shoe factories of New Hampshire average from 25 to 35 per cent. less than is paid in the Massachusetts factories.

The lasters in the employ of Crafts & Green in West Manchester, shoe manufacturers, struck against a reduction of ten cents a case made March 31. But few were involved in the trouble, and no interruption of the business of the firm was experienced. Those that returned were obliged to resume work at reduced wages.

Early in March the journeymen plumbers and gas fitters made a request to the master plumbers for nine hours for a

day's work the first five days in the week, and eight hours on Saturdays, wages to remain the same as formerly. During the consideration of the question, the following correspondence was had between the parties at interest:

MANCHESTER, N. H., March 10, 1894.

To the Master Plumbers' Association:

GENTS—At the last regular meeting of the Journeymen Plumbers, Steam and Gas Fitters' association they decided to ask their employers for nine hours a day for five days, and eight hours on Saturday, the same to go into effect May 1, 1894, on all contracts taken from this day, our wages to remain the same. We would also like some understanding in regard to journeymen taking work from the shops and would like the master plumbers to appoint a conference committee of three to confer with the same number from the union in regard to any matter that may arise. Hoping to receive a favorable reply, we remain,

Respectfully yours,

PLUMBERS', STEAM AND GAS FITTERS' UNION.

MANCHESTER, N. H., April 21, 1894.

Plumbers, Steam and Gas Fitters' Union:

GENTS—At a meeting of the Master Plumbers' association of Manchester, held Wednesday, April 18, your request was considered, and owing to the condition of all kinds of business we think it inexpedient to allow nine hours for a day at the present time, and hope you will withdraw your request. It would be really asking for an advance of a little more than 10 per cent. in wages, and it seems to us that the condition of all kinds of business and the outlook for the near future would n't warrant it, and we think you in your good judgment will realize the position. It would also place us in a position where we could not compete with others in contracts in other sections of the state. We wish you to think that we have no selfish motives, but are acting, in our judgment, for the best interests mutually.

Yours, etc.

——— ——— ———.

MANCHESTER, N. H., April 30, 1894.

Plumbers, Steam and Gas Fitters' Union:

GENTS—At a meeting of the Master Plumbers' association of Manchester it was unanimously voted that on and after May 7 we employ our men by the hour, the wages to be mutually agreed upon between

the employer and employé, according to the value of their services, the working hours to be from 7 to 12 a. m., and 1 to 5 p. m. All time after 9 o'clock p. m., Sundays and legal holidays, the pay to be time and a half, or one and one half hours for one hour.

Yours respectfully,

_____.

The request not being granted, the men refused to continue work longer. On May 1 a committee from each party at interest held a conference, but no change in the situation was reached. Each maintained their respective positions, but after two weeks an agreement was reached, and the men resumed work, being successful in their request for shorter hours.

NORTHWOOD.

On November 19, the employés of the Towle & Dow shoe factory received notice of a cut down of from 10 to 15 per cent. in wages, and, refusing to accept same, quit work and left the shop. Shortly afterward a branch of the Knights of Labor and a lasters' union was formed, and nearly all the employés became members. This placed them in a better position to maintain the attitude taken, which was that the reduction was exorbitant and unnecessary. In the meantime the firm offered to re-establish the old wages, but refused to deal with the help as an organization, although willing to meet the operatives individually. This proposition was rejected. Nearly 150 persons were involved in the trouble, and complaint was made that the help were otherwise treated unfairly. The strike has not been declared off, although some of the old hands have resumed work and other help has been secured from elsewhere. The factory was closed but a short time.

PITTSFIELD.

On February 24, the employés in the shoe factory of Knowles & Poole received notice of a reduction in wages

to take effect March 3d. The lasters' union took the matter under consideration, and finally decided to strike and to demand former wages as a basis of settlement for resuming work, and on March 2d, as each man completed the case on which he was at work, he picked up his tools and left the shop. The firm subsequently employed a few Armenians, and introduced lasting machines, which have since been doing the work of the strikers. Twenty-four men were involved in the strike, which has never been declared off.

The firm claimed that its competitors were getting their work done for from 10 to 25 per cent. less than it was paying, and in order to successfully meet competition it was necessary to make a reduction of 10 per cent., which all accepted except the lasters. They were requested to remove their kits, that new help might be employed at wages offered. In the meantime, lasting machines were introduced. Some interference was made with the new help, causing more or less trouble, but nothing of a serious character was experienced. The firm was posted at all lasters' headquarters, but it claims this had no effect on its business, aside from a little inconvenience in breaking in new help. None of the strikers were re-employed. It also claims that it experienced some loss on account of the strike, but the success of the machines, which enabled them to perform the work much cheaper, more than wiped out the loss sustained; that while it would have been glad to have had the men kept at work, it has been very much the gainer by changing to machine work.

ROCHESTER.

The strike of the lasters employed by Francis W. Breed, of Lynn, Mass., also owner of shoe factory in Rochester, for more wages, was the cause of a sympathetic strike of the lasters in the latter place November 19th. On the following day, when the other employés came to work, they

found themselves locked out, and placards conspicuously posted, announcing that "All employés can consider themselves discharged." A week later, expecting work to be resumed, the employés assembled at the shop, when they were told that they must sign an agreement to the effect that all employés shall give two weeks' notice before leaving the shop, and that the firm shall give a similar notice before discharging help, unless caused by accident or shutdown; that all employés shall waive all claims for damages from the firm if injured in the performance of their work, which a large number of the employés refused to do, and left the premises. The lasters demanded that the men be allowed to resume work at old wages, and that the proposed agreement or contract be ignored, which were not acceded to by the employers, and after a time new help was employed in place of the strikers.

Somersworth.

The lasters and cutters in the employ of C. D. Pecker & Co., shoe manufacturers, refused, on April 18, to accept a ten per cent. reduction in wages on medium grade goods. The firm claimed this step was necessary in order to enable it to compete with other manufacturers, and because of the refusal of the help to accept the reduced rate of wages, the shop was closed indefinitely, and a portion of the business was moved to Amesbury, Mass.

Suncook.

On August 16th notices were posted in the China, Webster, and Pembroke mills, notifying the employés that a reduction of wages would be made on August 20. On that date they were notified of a reduction of 10 per cent. A year earlier the weavers were paid 22½ cents per cut, which later was reduced to 19½ cents, and the above reduction fixed the price at 17 cents, which was said to be Fall River

prices. The claim was made that the mills were running at a loss, that the storehouses were half full of unsold goods, and that the reduction was made to help the employés tide over the dull period. This claim was not satisfactory to the help, and on the afternoon of August 22 nearly all of the weavers in the China mill, some 400 in number, quietly went out, and refused to continue work unless given the old rate of wages. The following day the strikers were joined by weavers from the other mills, and on August 26 the number reached 700, or nearly one half of the force employed in the three mills. On August 28 the Webster and Pembroke mills were shut down for an indefinite period, and shortly afterward the China mill was forced to close its gates, throwing out of employment, with the strikers, over fifteen hundred people. On September 10 the gates of the three mills were thrown open, and the help given an opportunity to resume work, but they declined to enter at the reduced rate of wages. A week later the gates of the mills were again opened, and a portion of the employés of the Webster and Pembroke mills resumed employment. Shortly afterward work was resumed in the China mill, and the strike was brought to an unsuccessful ending on the part of the strikers. It was undoubtedly brought to an end much sooner than it otherwise would have been from the fact that the operatives, who were mainly French Canadians, had but little money they cared to use to withstand a long siege, and were denied credit at the stores during the strike.

WOLFEBOROUGH.

A slight breeze of excitement was caused during the latter part of May in the shoe shop of J. M. Cropley & Brother, on account of a reduction of wages, and Armenians were employed for a short time. The trouble was soon satisfactorily settled, and the Armenians were dispensed with.

STATISTICS OF MANUFACTURES.

STATISTICS OF MANUFACTURES.

According to the census of 1890, as published in Extra Census Bulletin No. 67, there are 3,229 manufacturing establishments in New Hampshire; this number includes establishments which reported a product of $500 or more in value. The aggregate amount of capital invested is $79,375,160; in value of plant, $41,210,934, divided as follows: land, $8,392,436; buildings, $10,884,979; machinery, tools, and implements, $21,933,519. Live assets, $38,164,226. Officers, firm members and clerks (males above 16 years of age) number 2,798, to whom $2,127,654 was paid in wages; females above 15 years, 452, to whom was paid $193,110 in wages. Number of skilled and unskilled employés (males above 16), 32,762; wages paid, $13,632,029; females above 15, 16,326; wages paid, $4,774,664; children employed, 1,387; wages paid, $212,720. Piece-workers (males above 16) number 4,747; wages paid, $2,074,694; females above 15, 4,607; wages paid, $1,198,685; children, 282; wages paid, $34,498. Total number of employés in state, 63,361; total amount of wages paid, $24,248,054; other miscellaneous expenses, $4,363,192. Cost of materials used, $47,754,152; value of product, including receipts from custom work and repairing, $85,770,549.

Compared with the census of 1880, the number of manufacturing establishments in 1890 shows an increase of but 1.50 per cent., but in aggregate amount of capital invested there was an increase of 55+ per cent., or $28,262,897. In number of male employés (aside from officers, firm members, and clerks), there was an increase of 27+ per cent., and in number of female employés, 29+ per cent.; in number of children employed there was a decrease of 49+ per cent.; the average increase for all employés was

23+ per cent. In total amount of wages paid (aside from amount paid officers, firm members, and clerks) there was an increase of 48+ per cent.; with said amount, an increase of 63+ per cent., and in value (cost) of materials used, 9+ per cent.; in this calculation, $4,363,192, classed as "miscellaneous expenses," are not included. In value of products there was an increase of 15+ per cent.

There is food for thought in the fact that during the decade ending in 1890, there was an increase of 63+ per cent. in amount of wages paid, a very much larger per cent. increase than in number (23+ per cent.) of people employed, yet the increase in value of goods produced was but 15+ per cent. In other words, the margin of difference between expenses and value of product in 1880 was $15,610,773; in 1890, $9,405,151, a decrease of 39+ per cent.

As a matter of reference and for convenience of comparison the following table gives the number of manufacturing establishments in the state, amount of capital invested, average number of male and female employés, total amount of wages paid, value of materials used, and value of product, for the census years of 1850, 1860, 1870, 1880, 1890.

YEAR.	No. establishments.	Capital.	Average number employés.			Total amount wages paid.	Value of materials used.	Value of products.
			Males above 16 years.	Females above 15 years.	Children			
1850.....	3,211	$18,242,114	14,103	12,989	.....	$6,123,876	$12,745,466	$23,164,503
1860.....	2,592	23,274,094	18,379	13,961	.....	8,110,561	20,539,857	37,586,453
1870.....	3,342	36,023,743	25,829	12,775	2,179	13,823,091	44,577,967	71,038,249
1880.....	3,181	51,112,263	29,356	16,184	3,291	14,814,793	43,552,462	73,978,028
1890.....	3,229	79,375,160	*37,509	*20,933	1,669	†21,927,290	47,754,152	85,770,549

* Does not include officers, firm members, and clerks (males 2,798, females 452).

† Does not include wages paid officers, firm members, and clerks, amounting to $2,320,764.

NOTE.—In addition to wages and value of materials used, $4,363,192 are classed as "miscellaneous expenses" in report for 1890.

Extra Census Bulletin No. 66 gives "Statistics of Manufactures" for 165 cities with a population of 20,000 and upwards, among them Manchester. The number of manufacturing establishments in the city reported which includes all having a product of $500 and upwards, is 386. Capital invested—value of hired property, $1,946,028; direct investment—value of plant—land, $1,769,082; buildings, $2,283,805; machinery, tools, and implements, $6,557,663. Live assets—raw material, $3,139,496; stock in process and finished product on hand, $3,633,639; cash, bills and accounts receivable, etc., $5,041,283; total capital, $22,424,968. Miscellaneous expenses—rent, $121,991; taxes (including internal revenue tax), $211,164; insurance, $68,694; repairs on buildings and machinery, $183,625; paid to contractors, $22,300; interest paid on cash used in business, $244,559; sundry expenses, $220,542; total, $1,072,875.

Number of employés (officers, firm members, and clerks)—males above 16, 430; wages paid, $426,887; females above 15, 38; wages paid, $17,472. Operatives, skilled and unskilled—males above 16, 7,021; wages paid, $3,069,440; females above 15, 7,973; wages paid, $2,166,146; children, 249; wages paid, $36,050; piece-workers, males above 16, 246; wages paid, $140,465; females above 15, 294; wages paid, $93,774. Total number of employés, 15,351; total wages paid, $5,950,234.

Cost of materials used—principal materials, $10,523,930; fuel, $292,265; rent of power and heat, $40,719; mill supplies, $154,453; all other materials, $860,922. Total cost of materials used, $11,872,289. Value of product—principal products, $18,366,084; all other products, including receipts from custom work and repairing, $1,821,211. Total value, $20,187,295.

Recapitulation—number establishments, 386; total capital, $22,424,968; number employés, 15,351; wages paid,

$5,950,234; miscellaneous expenses, $1,072,875; cost of materials, $11,872,289; value of products, $20,187,295.

Compared with the census of 1880, Manchester shows an increase in number of manufacturing establishments of 219 per cent., in capital invested, 48+ per cent.; in total number of employés, 41+ per cent.; in wages paid, 70+ per cent.; in value of materials, 50+ per cent.; in value of product, 42+ per cent.

Compared with the entire state, Manchester has 11+ per cent. of the total number of manufacturing establishments reported; in capital invested, 28+ per cent.; in number of employés, 25+ per cent.; in amount of wages paid, 24+ per cent.; in value of material used, 24+ per cent.; in value of product, 23+ per cent. In other words, very nearly 25 per cent. of the manufacturing interests of the state is represented in that thriving and enterprising city.

The first year's experience of the Bureau of Labor demonstrated very clearly that the attempt to secure information of a statistical character by mail was anything but satisfactory. Two thousand schedules, covering a few important questions of a business character, formulated from the Massachusetts schedule, in connection with which every assurance possible was guaranteed that no names would be published or identity in any way revealed, were issued and forwarded to as many business establishments in the state, and it was anticipated that at least fifty per cent. would fill out the blanks properly, and return the same to the Bureau, but alas for human expectations, they were not realized. A second appeal only added to the experience of disappointment, and hopeful anticipation was compelled to give way to stern, cold, unrelenting logic. Out of the entire number less than twenty per cent. complied with the request for information, which was tabulated and presented in the first annual report.

Notwithstanding the discouragement of the first attempt to secure statistical information by the use of the mails, it was again decided, in view of the extraordinary expense attending personal solicitation, and the absence of any law requiring that statistical information shall be given, to again rely upon the mails as a means of communication with the manufacturing concerns of the state. A schedule was prepared, simpler in form and detail than the 1893 schedule; 4,000 were printed and forwarded to business men in various sections of the state, and assurance again given that confidence would in no way be violated or identity revealed.

The following is a list of the questions asked, accompanying which was an introductory letter, and an explanation to each inquiry intending to assist in giving the proper answers.

1. Name of firm.....
   Town or city.....
   Post-office address.....
2. Kinds of goods made or work done.....
3. Private firm,..... Corporation.....
4. Capital employed, including plant, $.....
5. Value of goods manufactured or work done, $.....
6. Total number of males employed (wage-earners only).....
   Total number of females employed (wage-earners only).....
   Total number of non-producers—superintendents, bookkeepers, salesmen, etc.....
7. Highest weekly wages paid males (wage-earners only) $.....
   Lowest weekly wages paid males (wage-earners only) $.....
   Highest weekly wages paid females (wage-earners only) $.....
   Lowest weekly wages paid females (wage-earners only) $.....
8. Total wages paid during year to wage-earners only, $.....
   Total sum paid to non-producers, supt's, clerks, etc., $.....
   Total sum paid for rent, insurance, taxes, etc., $.....
   Total value stock and material used—coal, gas, etc. $.....
9. Number days works were run during year.....
10. Percentage business run during year.....

With a much simpler form of schedule, it was anticipated that a larger percentage of returns would be made to the bureau than in 1893, but such was not the case. Out

of the entire number mailed to manufacturers, but 299 schedules available for use were returned to the bureau. These represent nearly the entire range of manufacturing industries, and although few in number compared to the total number of manufacturing establishments in New Hampshire, they represent nearly twenty-five per cent. in amount of capital invested, value of material used, number of employés, wages paid, value of product, etc., of the entire manufacturing interests of the state. For convenience in tabulation and in order that identity shall in no way be revealed, in accordance with the declared assertion of the Bureau, not less than two concerns are considered in any one industry, the entire number reporting being grouped under thirty heads, covering from two to forty-four establishments each. While a part of the returns cover a portion of 1894, they are largely computed to the first of the year, and are herewith tabulated.

Following these tables is also statistical data based upon returns from 166 identical establishments, grouped in twenty-five classified industries, which made reports in both 1893 and 1894. The comparative showing made between the two years, full details of which are found in the tables and in the analysis following the tabulations, undoubtedly accurately reflect the industrial conditions prevailing in the state at that time.

STATISTICS OF MANUFACTURES.

TABLE 83.—*Showing capital invested, cost of material used, and amount of wages paid, by industries and totals.*

	INDUSTRIES.	No. of establishments considered.	Capital invested.	Cost of material.	Total wages paid.
	Totals	299	$18,069,648	$11,838,802	$5,777,161
1	Agricultural tools	2	15,000	6,550	1,950
2	Artisans' tools	3	246,204	86,777	123,732
3	Boots and shoes	16	1,913,285	3,118,250	1,091,638
4	Boxes (paper and wooden)	10	126,000	100,083	68,903
5	Brick and drain tile	8	256,839	100,503	116,709
6	Building and contracting	5	58,000	53,675	66,800
7	Carriages and wagons	4	122,000	36,066	39,778
8	Chemical preparations	2	27,000	24,650	2,900
9	Clothing	13	209,000	320,082	176,165
10	Cooking and heating apparatus	10	108,500	129,368	42,949
11	Cotton goods	9	6,407,937	2,994,901	1,265,446
12	Food preparations	22	337,500	275,296	80,098
13	Furniture	14	478,000	296,091	162,770
14	Hosiery and knit goods	11	1,201,000	729,725	486,175
15	Leather goods	10	689,600	538,102	194,957
16	Liquors, fermented and distilled	3	16,000	11,450	12,200
17	Lumber	25	949,126	487,427	220,260
18	Machines and machinery	16	738,000	421,628	323,984
19	Metallic goods	10	755,500	176,705	110,112
20	Mixed textiles	3	148,000	213,833	67,973
21	Oils and illuminating fluids	10	658,500	76,922	38,828
22	Paper and paper goods	2	185,000	156,412	25,330
23	Photographic goods	2	9,000	2,235	809
24	Printing and publishing	13	68,600	23,548	18,454
25	Stone products	16	441,225	101,241	357,089
26	Soap and grease	2	7,000	4,525	1,635
27	Tobacco and cigars	2	78,000	184,175	88,000
28	Wooden goods	44	839,000	419,054	311,773
29	Woolen goods	7	992,000	750,150	252,482
30	Miscellaneous industries	5	88,832	19,378	27,262

STATISTICS OF MANUFACTURES.

TABLE 84.—*Showing value of product and number of employés by sexes, by industries and totals.*

	INDUSTRIES.	No. establishments consid'd.	Value of Product.	Employés.		
				Males.	Females.	Total.
	Totals	299	$21,151,826	11,507	5,452	16,959
1	Agricultural tools	2	22,000	16	.....	16
2	Artisans' tools	3	256,358	263	20	283
3	Boots and shoes	16	4,622,466	1,967	828	2,795
4	Boxes (paper and wooden)	10	233,549	134	81	215
5	Brick and drain tile	8	240,973	393	.....	393
6	Building and contracting	5	259,500	212	.....	212
7	Carriages and wagons	4	107,575	90	.....	90
8	Chemical preparations	2	77,000	10	8	18
9	Clothing	13	569,167	267	543	810
10	Cooking and heating apparatus	10	286,256	106	.....	106
11	Cotton goods	9	5,066,566	2,009	2,533	4,542
12	Food preparations	22	624,623	163	7	170
13	Furniture	14	526,093	724	7	731
14	Hosiery and knit goods	11	1,338,800	687	910	1,597
15	Leather goods	10	860,700	355	10	365
16	Liquors, fermented and distilled	3	23,000	17	.....	17
17	Lumber	25	1,083,068	628	.....	628
18	Machines and machinery	16	977,000	779	72	851
19	Metallic goods	10	363,200	265	4	269
20	Mixed textiles	3	308,000	110	61	171
21	Oils and illuminating fluids	10	131,510	75	.....	75
22	Paper and paper goods	2	199,177	67	22	89
23	Photographic goods	2	7,500	3	1	4
24	Printing and publishing	13	64,650	41	19	60
25	Stone products	16	587,850	548	7	555
26	Soap and grease	2	9,000	10	.....	10
27	Tobacco and cigars	2	286,000	108	40	148
28	Wooden goods	44	995,421	872	5	877
29	Woolen goods	7	955,070	524	270	794
30	Miscellaneous industries	5	69,754	64	4	68

STATISTICS OF MANUFACTURES.

TABLE 85.—*Showing highest and lowest weekly wages paid males and females, average number of days works were run, and average proportion of business done, by industries and totals.*

	INDUSTRIES.	No. establishments considered.	Weekly wages paid males.		Weekly wages paid females.		Average number days run.	Average proportion business done.
			Highest.	Lowest.	Highest.	Lowest.		
	Totals	299	$36.00	$2.00	$21.00	$2.00	269	72
1	Agricultural tools	2	9.00	5.40	.....	.....	198	40
2	Artisans' tools	3	21.00	4.00	7.00	2.00	262	70
3	Boots and shoes	16	35.00	2.00	21.00	2.00	248	64
4	Boxes (paper and wooden)	10	19.23	3.60	14.00	3.00	285	68
5	Brick and drain tile	8	24.00	7.50	.....	.....	213	76
6	Building and contracting	5	27.00	4.50	.....	.....	254	67
7	Carriages and wagons	4	24.68	4.50	.....	.....	240	80
8	Chemical preparations	2	16.66	6.60	5.00	4.50	260	51
9	Clothing	13	22.28	3.00	11.82	2.50	290	71
10	Cooking and heating ap'aratus	10	21.00	6.00	.....	.....	297	75
11	Cotton goods	9	36.00	2.14	9.00	2.00	287	93
12	Food preparations	22	25.00	3.00	20.00	6.00	326	88
13	Furniture	14	20.00	3.00	18.00	4.00	285	66
14	Hosiery and knit goods	11	24.00	2.10	16.00	2.10	254	73
15	Leather goods	10	21.00	2.50	5.00	2.50	282	86
16	Liquors, ferment'd and distill'd	3	15.00	6.00	.....	.....	311	70
17	Lumber	25	21.00	3.00	.....	.....	234	69
18	Machines and machinery	16	24.00	3.00	11.33	3.00	304	60
19	Metallic goods	10	23.00	3.50	7.50	6.00	265	71
20	Mixed textiles	3	24.00	6.00	15.00	6.00	299	70
21	Oils and illuminating fluids	10	21.00	2.12	.....	.....	344	85
22	Paper and paper goods	2	16.50	4.50	6.00	3.60	250	84
23	Photographic goods	2	25.00	5.00	5.00	.....	260	60
24	Printing and publishing	13	12.00	4.00	12.00	2.60	308	86
25	Stone products	16	24.00	3.50	14.50	3.50	275	67
26	Soap and grease	2	15.00	7.50	.....	.....	313	88
27	Tobacco and cigars	2	35.00	3.00	7.00	4.00	306	85
28	Wooden goods	44	28.00	2.40	7.00	2.00	234	49
29	Woolen goods	7	30.00	3.00	12.00	3.00	278	80
30	Miscellaneous industries	5	24.00	6.00	7.00	3.00	200	54

COMPARATIVE STATISTICS.

TABLE 86.—*Showing capital invested by same establishments reporting in 1893 and 1894, with differences in amounts and percentages of increase or decrease, by industries and totals.*

INDUSTRIES.	No. establishments consid'd.	Capital Invested.		Increase (+) decrease (—) or no change (=) in 1894.	
		1893.	1894.	Amounts.	Percentages.
Totals	166	$14,968,161	$14,488,890	—$479,271	—3.20
Artisans' tools	3	$250,000	$246,204	—$3,796	—1.50
Boots and shoes	11	754,500	912,500	+158,000	+20.94
Boxes (paper and wooden)	7	105,500	93,000	—12,500	—11.84
Brick and drain tile	4	184,139	186,839	+2,700	+1.46
Building and contracting	2	50,000	26,000	—24,000	—48.00
Carriages and wagons	2	122,500	111,000	—11,500	—9.38
Chemical preparations	2	52,000	27,000	—25,000	—48.19
Clothing	4	192,500	158,000	—34,500	—17.92
Cooking and heating app	2	50,000	35,000	—15,000	—30.00
Cotton goods	9	6,383,248	6,407,939	+24,691	+0.36
Food preparations	5	66,500	61,000	—5,500	—8.27
Furniture	9	283,000	303,000	+20,000	+7.06
Hosiery and knit goods	9	1,118,750	1,165,000	+46,250	+4.13
Leather and leather goods	3	925,000	570,000	—355,000	—38.37
Lumber	14	722,107	682,626	—39,481	—5.46
Machines and machinery	7	356,000	356,000	=	=
Metallic goods	9	707,600	728,000	+20,400	+2.88
Mixed textiles	2	147,000	147,000	=	=
Oils and illuminating fluids	4	133,500	100,500	—33,000	—24.71
Paper and paper goods	2	185,000	185,000	=	=
Printing and publishing	6	49,000	44,600	—4,400	—8.97
Stone products	8	99,917	99,050	—867	—0.86
Wooden goods	31	739,400	733,500	—5,900	—0.79
Woolen goods	6	1,194,500	1,012,500	—182,000	—15.23
Miscellaneous	5	96,500	97,632	+1,132	+1.17

COMPARATIVE STATISTICS.

TABLE 87.—*Showing cost of material used by same establishments reporting in 1893 and 1894, with differences in amounts and percentages of increase or decrease, by industries and totals.*

INDUSTRIES.	No. establishments consid'd.	Cost of Material.		Increase (+) or decrease (—) in 1894.	
		1893.	1894.	Amounts.	Percentages.
Totals	166	$10,088,270	$9,598,814	—$439,456	—4.85
Artisans' tools	3	$104,088	$86,777	—$17,311	—16.63
Boots and shoes	11	1,623,458	1,734,566	+111,108	+6.84
Boxes (paper and wooden)	7	91,490	85,809	—5,681	—6.20
Brick and drain tile	4	57,983	66,013	+8,030	+13.84
Building and contracting	2	25,000	26,100	+1,100	+4.40
Carriages and wagons	2	40,510	33,751	—6,759	—14.21
Chemical preparations	2	31,175	24,650	—655	—20.93
Clothing	4	150,826	246,057	+95,231	+63.13
Cooking and heating app	2	27,000	32,535	+5,535	+20.50
Cotton goods	9	3,387,634	3,006,484	—381,150	—11.22
Food preparations	5	83,635	80,584	—3,051	—3.64
Furniture	9	192,777	207,166	+14,389	+7.41
Hosiery and knit goods	9	748,885	720,875	—28,010	—3.74
Leather and leather goods	3	232,175	470,400	+238,225	+102.60
Lumber	14	260,425	247,497	—12,928	—4.96
Machines and machinery	7	249,054	245,480	—3,574	—1.43
Metallic goods	9	245,778	144,705	—101,073	—41.12
Mixed textiles	2	252,154	213,158	—38,996	—15.46
Oils and illuminating fluids	4	9,400	16,388	+6,988	+74.34
Paper and paper goods	2	186,705	156,412	—30,293	—16.22
Printing and publishing	6	9,818	8,465	—1,353	—13.78
Stone products	8	58,200	54,348	—3,852	—6.61
Wooden goods	31	392,827	361,601	—31,226	—7.94
Woolen goods	5	1,241,110	944,667	—296,443	—23.88
Miscellaneous	5	386,163	384,326	—1,837	—0.46

COMPARATIVE STATISTICS.

TABLE 88.—*Showing value of product for same establishments reporting in 1893 and 1894, with differences in amounts and percentages of increase and decrease, by industries and totals.*

INDUSTRIES.	No. establishments consid'd.	Value of Product.		Increase (+) or decrease (—) in 1894.	
		1893.	1894.	Amounts.	Percentages.
Totals	166	$18,936,633	$16,312,963	—$2,623,670	—13.85
Artisans' tools	3	$303,989	$256,358	—$47,631	—15.66
Boots and shoes	11	2,641,288	2,603,214	—38,074	—1.44
Boxes (paper and wooden)	7	214,200	172,212	—41,988	—19.13
Brick and drain tile	4	114,201	145,973	+31,772	+27.99
Building and contracting	2	123,825	149,000	+25,175	+20.33
Carriages and wagons	2	115,023	100,075	—14,948	—12.99
Chemical preparations	2	102,500	77,000	—25,500	—24.87
Clothing	4	457,087	392,567	—64,520	—14.11
Cooking and heating app	2	91,731	110,256	+18,525	+20.19
Cotton goods	9	6,029,638	5,066,566	—963,072	—15.97
Food preparations	5	154,250	147,914	—6,336	—4.10
Furniture	9	401,444	386,093	—15,351	—3.82
Hosiery and knit goods	9	1,498,581	1,329,166	—169,415	—11.30
Leather and leather goods	3	638,470	600,000	—38,470	—6.02
Lumber	14	454,984	437,568	—17,416	—3.82
Machines and machinery	7	605,265	589,940	—15,325	—2.53
Metallic goods	9	471,800	278,200	—193,600	—41.03
Mixed textiles	2	331,556	305,667	—25,889	—7.50
Oils and illuminating fluids	4	131,600	109,968	—21,632	—16.43
Paper and paper goods	2	266,447	199,177	—67,270	—21.45
Printing and publishing	6	29,200	29,250	+50	+0.17
Stone products	8	175,786	159,000	—16,786	—9.54
Wooden goods	31	993,563	815,121	—178,442	—17.95
Woolen goods	6	1,825,105	1,255,070	—570,035	—31.23
Miscellaneous	5	765,100	597,608	—167,492	—21.89

COMPARATIVE STATISTICS.

TABLE 89.—*Showing number of males employed in same establishments reporting in 1893 and 1894, with differences in amounts and percentages of increase and decrease, by industries and totals.*

INDUSTRIES.	No. establishments consid'd.	Employés—Males.		Increase (+), decrease (—), or no change (=) in 1894.	
		1893.	1894.	Amounts.	Percentages.
Totals	166	9,257	8,705	—552	—5.99
Artisans' tools	3	305	263	—42	—13.77
Boots and shoes	11	1,191	1,283	+92	+7.72
Boxes (paper and wooden)	7	92	89	—3	—3.26
Brick and drain tile	4	191	219	+28	+14.65
Building and contracting	2	78	130	+52	+66.66
Carriages and wagons	2	82	85	+3	+3.65
Chemical preparations	2	11	12	+1	+9.09
Clothing	4	242	238	—4	—1.65
Cooking and heating app	2	33	31	—2	—6.06
Cotton goods	9	2,393	2,002	—391	—16.33
Food preparations	5	29	30	+1	+3.44
Furniture	9	603	645	+42	+6.96
Hosiery and knit goods	9	657	607	—50	—7.61
Leather and leather goods	3	168	186	+18	+10.71
Lumber	14	360	327	—33	—9.16
Machines and machinery	7	449	493	+44	+9.79
Metallic goods	9	274	190	—84	—30.65
Mixed textiles	2	85	108	+23	+27.05
Oils and illuminating fluids	4	16	14	—2	—12.50
Paper and paper goods	2	74	57	—17	—22.93
Printing and publishing	6	19	19	=	=
Stone products	8	101	108	+7	+6.93
Wooden goods	31	948	806	—142	—14.97
Woolen goods	6	518	515	—3	—0.57
Miscellaneous	5	338	248	—90	—26.62

COMPARATIVE STATISTICS.

TABLE 90.—*Showing number of females employed in same establishments reporting in 1893 and 1894, with differences in amounts and percentages of increase and decrease, by industries and totals.*

INDUSTRIES.	No. establishments consid'd.	Employés—Females.		Increase (+), decrease (—), or no change (=) in 1894.	
		1893.	1894.	Amounts.	Percentages.
Totals	166	5,063	4,832	—231	—4.56
Artisans' tools	3	26	20	—6	—23.07
Boots and shoes	11	467	558	+91	+19.48
Boxes (paper and wooden)	7	87	71	—16	—18.39
Brick and drain tile	4	.....	.....	.....	.....
Building and contracting	2	.....	.....	.....	.....
Carriages and wagons	2	.....	.....	.....	.....
Chemical preparations	2	8	5	—3	—37.50
Clothing	4	257	235	—22	—8.52
Cooking and heating app.	2	.....	.....	.....	.....
Cotton goods	9	2,580	2,515	—65	—2.53
Food preparations	5	.....	.....	.....	.....
Furniture	9	4	5	+1	+25.00
Hosiery and knit goods	9	1,050	888	—162	—15.42
Leather and leather goods	3	7	8	+1	+14.28
Lumber	14	.....	.....	.....	.....
Machines and machinery	7	76	67	—9	—11.54
Metallic goods	9	3	4	+1	+33.33
Mixed textiles	2	59	61	+2	+3.38
Oils and illuminating fluids	4	.....	.....	.....	.....
Paper and paper goods	2	27	22	—5	—18.51
Printing and publishing	6	8	7	—1	—12.50
Stone products	8	15	7	—8	—53.32
Wooden goods	31	4	1	—3	—75.00
Woolen goods	6	293	270	—23	—7.81
Miscellaneous	5	92	88	—4	—4.34

COMPARATIVE STATISTICS.

TABLE 91.—*Showing wages paid by same establishments reporting in 1893 and 1894, with differences in amounts and percentages of increase and decrease, by industries and totals.*

INDUSTRIES.	No. establishments consid'd.	Total wages paid.		Increase (+) or decrease (—) in 1894.	
		1893.	1894.	Amounts.	Percentages.
Totals	166	$4,879,606	$4,397,607	—$481,999	—9.87
Artisans' tools	3	$146,728	$123,732	—$22,996	—15.67
Boots and shoes	11	646,022	694,907	+48,885	+7.56
Boxes (paper and wooden)	7	67,103	54,854	—12,248	—18.25
Brick and drain tile	4	48,187	68,678	+20,491	+42.57
Building and contracting	2	32,274	34,500	+2,226	+6.89
Carriages and wagons	2	36,963	37,178	+215	+0.58
Chemical preparations	2	2,597	2,200	—397	—15.28
Clothing	4	123,173	127,865	+4,692	+3.80
Cooking and heating app	2	11,453	11,240	—213	—1.85
Cotton goods	9	1,571,474	1,265,446	—306,028	—19.47
Food preparations	5	26,150	25,470	—680	—2.60
Furniture	9	126,423	121,570	—4,853	—3.83
Hosiery and knit goods	9	440,776	415,325	—25,451	—5.77
Leather and leather goods	3	123,616	134,070	+10,454	+8.45
Lumber	14	125,336	119,355	—5,981	—4.78
Machines and machinery	7	203,270	202,196	—1,074	—0.52
Metallic goods	9	152,589	80,112	—72,477	—47.49
Mixed textiles	2	60,306	67,523	+7,217	+11.96
Oils and illuminating fluids	4	5,100	7,558	+2,458	+48.19
Paper and paper goods	2	29,644	25,330	—4,314	—14.55
Printing and publishing	6	9,154	8,910	—244	—2.66
Stone products	8	58,932	55,929	—3,003	—5.09
Wooden goods	31	325,466	279,523	—45,943	—14.11
Woolen goods	6	283,870	250,682	—33,188	—11.69
Miscellaneous	5	223,000	183,454	—39,546	—17.73

COMPARATIVE STATISTICS.

TABLE 92.—*Showing average yearly wages of employés in same establishments reporting in 1893 and 1894, with differences in amounts and percentages of increase or decrease, by industries, and totals.*

INDUSTRIES.	No. establishments consid'd.	Average yearly wages.		Increase (+) or decrease (—) in 1894.	
		1893.	1894.	Amounts.	Per centages.
Totals	166	$341	$325	—$16	—4.69
Artisans' tools	3	$443	$437	—$0.06	—1.35
Boots and shoes	11	389	377	—12	—3.07
Boxes (paper and wooden)	7	375	343	—32	—8.53
Brick and drain tile	4	252	314	+62	+24.60
Building and contracting	2	414	265	—149	—35.99
Carriages and wagons	2	451	437	—14	—3.10
Chemical preparations	2	236	183	—53	—22.45
Clothing	4	261	271	+10	+3.83
Cooking and heating app	2	341	363	+22	+6.45
Cotton goods	9	318	280	—38	—1.20
Food preparations	5	671	849	+178	+26.37
Furniture	9	208	187	—21	—10.07
Hosiery and knit goods	9	258	278	+20	+7.75
Leather and leather goods	3	706	691	—15	—2.11
Lumber	14	348	365	+17	+4.91
Machines and machinery	7	387	361	—26	—6.72
Metallic goods	9	551	412	—39	—7.07
Mixed textiles	3	419	400	—19	—4.53
Oils and illuminating fluids	4	319	536	+217	+68.02
Paper and paper goods	2	294	320	+26	+8.84
Printing and publishing	6	339	343	+4	+1.17
Stone products	8	507	486	—21	—4.14
Wooden goods	31	373	346	—27	—7.13
Woolen goods	6	351	319	—32	—9.11
Miscellaneous	5	519	546	+27	+5.20

COMPARATIVE STATISTICS.

TABLE 93.—*Showing highest weekly wages paid males by same establishments reporting in 1893 and 1894, with differences in amounts and percentages of increase and decrease, by industries and totals.*

INDUSTRIES.	No. establishments consid'd.	Highest weekly wages paid males.		Increase (+), decrease (—), or no change (=) in 1894.	
		1893.	1894.	Amounts.	Per centages.
Totals	166	$30.00	$36.00	+$6.00	+20.00
Artisans' tools	3	$21.00	$18.00	—$3.00	—14.47
Boots and shoes	11	30.00	35.00	+5.00	+16.66
Boxes (paper and wooden)	7	20.00	19.00	—1.00	—5.00
Brick and drain tile	4	15.00	20.00	+5.00	+33.33
Building and contracting	2	30.00	27.00	—3.00	—10.00
Carriages and wagons	2	24.00	25.00	+1.00	+4.16
Chemical preparations	2	16.00	10.50	—5.50	—34.37
Clothing	4	21.00	22.00	+1.00	—4.76
Cooking and heating app	2	15.00	18.00	+3.00	+20.00
Cotton goods	9	30.00	36.00	+6.00	+20.00
Food preparations	5	24.00	20.00	—4.00	—16.66
Furniture	9	24.00	20.00	—4.00	—16.66
Hosiery and knit goods	9	24.00	24.00	=	=
Leather and leather goods	3	21.00	21.00	=	=
Lumber	14	21.00	21.50	+0.50	+2.38
Machines and machinery	7	24.00	24.00	=	=
Metallic goods	9	30.00	30.00	=	=
Mixed textiles	2	18.00	24.00	+6.00	+33.33
Oils and illuminating fluids	4	10.00	18.00	+8.00	+80.00
Paper and paper goods	2	15.00	16.00	+1.00	+ 6.66
Printing and publishing	6	12.00	12.00	=	=
Stone products	8	24.00	18.00	—6.00	—25.06
Wooden goods	31	25.00	28.00	+3.00	—12.00
Woolen goods	6	30.00	30.00	=	=
Miscellaneous	5	30.00	35.00	+5.00	+16.66

COMPARATIVE STATISTICS.

TABLE 94.—*Showing lowest weekly wages paid males, highest and lowest weekly wages paid females by same establishments reporting in 1893 and 1894, with difference in amounts and percentages of increase and decrease, by industries and totals.*

Lowest weekly wages pd. males.		Increase (+), decrease (−), or no change (=) in 1894.		Highest weekly wages pd. females.		Increase (+), decrease (−), or no change (=) in 1894.		Lowest weekly wages pd. females.		Increase (+), decrease (−), or no change (=) in 1894.	
1893.	1894.	Am'ts.	Per-centages.	1893.	1894.	Am'ts.	Per-centages.	1893.	1894.	Am'ts.	Per-centages.
$2.50	$2.12	−$0.38	−15.20	$21.00	$21.00	=	=	$2.00	$2.00	=	=
$4.00	$4.50	$+0.50	+$12.50	$7.00	$6.00	−$1.00	−14.28	$3.00	$2.00	−$1.00	−33.33
2.50	2.50	=	=	15.00	21.00	+6.00	+40.00	2.00	2.00	=	=
3.00	3.60	+0.60	+20.00	10.00	14.00	+4.00	+40.00	3.00	3.00	=	=
6.00	7.50	+1.50	+25.00	.....	.....	.....	.....	.....	.....	.....	.....
7.50	4.50	−3.00	−40.00	.....	.....	.....	.....	.....	.....	.....	.....
3.00	4.50	+1.50	+50.00	.....	.....	.....	.....	.....	.....	.....	.....
5.00	6.60	+1.60	+32.00	5.00	5.00	=	=	4.50	4.50	=	=
4.00	4.50	+0.50	+12.50	10.00	11.82	+1.82	+18.20	3.00	3.00	=	=
4.00	7.50	+3.50	+87.50	.....	.....	.....	.....	.....	.....	.....	.....
4.50	2.14	−2.36	−52.44	10.00	10.00	=	=	3.00	2.00	−1.00	−50.00
4.50	5.50	+1.00	+22.22	.....	.....	.....	.....	.....	.....	.....	.....
4.80	3.00	−1.80	−37.50	18.00	18.00	=	=	6.00	4.00	−2.00	−33.33
4.50	3.00	−1.50	−33.33	15.00	16.00	+1.00	+6.66	3.00	3.00	=	=
4.80	2.40	−2.40	−50.00	.....	.....	.....	.....	.....	.....	.....	.....
4.50	3.00	−1.50	−33.33	.....	.....	.....	.....	.....	.....	.....	.....
3.50	3.00	−0.50	−14.28	7.00	11.33	+4.33	+61.85	3.00	3.00	=	=
3.00	3.50	+0.50	+16.66	6.00	7.50	+1.50	+25.00	3.00	6.00	+3.00	+100.00
5.00	6.00	+1.00	+20.00	10.00	15.00	+5.00	+50.00	5.00	6.00	+1.00	+20.00
7.50	2.12	−5.38	−71.73	7.00	9.00	+2.00	+28.57	3.00	3.60	+0.60	+20.00
4.80	4.50	−0.30	−6.25	.....	.....	.....	.....	.....	.....	.....	.....
3.00	4.00	+1.00	+33.33	10.00	9.50	−0.50	−5.00	3.00	2.60	−0.40	−13.33
4.00	3.50	−0.50	−12.50	21.00	14.50	−6.50	−30.95	3.00	3.50	+0.50	+16.66
3.33	2.40	−0.93	−27.90	8.00	7.50	−0.50	−6.25	3.00	2.00	−1.00	−33.33
4.80	3.00	−1.80	−37.50	12.00	12.00	=	=	3.00	3.00	=	=
3.00	4.00	+1.00	+33.33	7.00	7.00	=	=	3.00	3.00	=	=

COMPARATIVE STATISTICS.

TABLE 95.—*Showing average number of days works were in operation during year by same establishments reporting in 1893 and 1894, with differences in number and percentages of increase and decrease, by industries and totals.*

INDUSTRIES.	No. establishments consid'd.	Average No. of days works were in operation.		Increase (+), decrease (—), or no change (=) in 1894.	
		1893.	1894.	Days.	Percentages.
Totals	166	273	269	—4	—1.46
Artisans' tools	3	300	250	—50	—16.66
Boots and shoes	11	278	261	—17	—6.11
Boxes (paper and wooden)	7	302	296	—6	—1.98
Brick and drain tile	4	245	236	—9	—3.67
Building and contracting	2	174	179	+5	+2.87
Carriages and wagons	2	301	268	—33	—10.96
Chemical preparations	2	186	260	+74	+39.78
Clothing	4	298	294	—4	—1.34
Cooking and heating app	2	307	307	=	=
Cotton goods	9	308	286	—22	—7.14
Food preparations	5	301	301	=	=
Furniture	9	280	263	—17	—6.07
Hosiery and knit goods	9	263	251	—12	—4.56
Leather and leather goods	3	206	300	+94	+45.63
Lumber	14	227	211	—16	—7.04
Machines and machinery	7	306	300	—6	—1.96
Metallic goods	9	269	265	—4	—1.48
Mixed textiles	2	294	294	=	=
Oils and illuminating fluids	4	300	300	=	=
Paper and paper goods	2	300	250	—50	—16.66
Printing and publishing	6	306	306	=	=
Stone products	8	287	289	+2	+0.69
Wooden goods	31	243	242	—1	—0.41
Woolen goods	6	289	277	—12	—4.18
Miscellaneous	5	273	259	—14	—5.12

COMPARATIVE STATISTICS.

TABLE 96.—*Showing average proportion of business done by same establishments reporting in 1893 and 1894, with differences in proportion and percentages of increase and decrease, by industries and total averages.*

INDUSTRIES.	No. establishments consid'd.	Average proportion of business done.		Increase (+) or decrease (—) in 1894.	
		1893.	1894.	Proportion	Percentages.
Totals	166	73.76	71.48	—2.28	—3.09
Artisans' tools	3	75	62	—13	—17.33
Boots and shoes	11	67	62	—5	—7.46
Boxes (paper and wooden)	7	60	50	—10	—16.66
Brick and drain tile	4	75	83	+8	+10.66
Building and contracting	2	60	57	—3	—5.00
Carriages and wagons	2	83	80	—3	—3.61
Chemical preparations	2	40	50	+10	+25.00
Clothing	4	68	66	—2	—2.94
Cooking and heating app	2	91	89	—2	—2.19
Cotton goods	9	100	92	—8	—8.00
Food preparations	5	68	94	+16	+23.52
Furniture	9	73	63	—10	—13.69
Hosiery and knit goods	9	85	87	+2	+2.35
Leather and leather goods	3	75	85	+10	+13.33
Lumber	14	65	63	—2	—3.07
Machines and machinery	7	75	74	—1	—1.33
Metallic goods	9	68	64	—4	—5.88
Mixed textiles	2	95	93	—2	—2.10
Oils and illuminating fluids	4	53	54	+1	+1.88
Paper and paper goods	2	98	82	—16	—16.32
Printing and publishing	6	76	68	—8	—10.52
Stone products	8	76	73	—3	—3.94
Wooden goods	31	61	63	+2	+3.27
Woolen goods	6	89	80	—9	—10.11
Miscellaneous	5	68	63	—5	—7.35

ANALYSIS.

A perusal of the tables on pages 483, 484, 485, will show that the total amount of capital invested in the 299 establishments reporting in 1894 was $18,069,648. Cotton goods represent by far the largest amount of capital invested in any industry, the nine establishments considered reporting $6,407,937 capital; boots and shoes following with a capital of $1,913,285, and hosiery and knit goods with a capital of $1,201,000. The total cost of material used by all of the establishments reporting was $11,838,802, and strange as it may seem, cotton goods, which represented by far the largest amount of capital invested, ranks second to boots and shoes in value of material used, the amounts being $2,994,901 and $3,118,250 respectively. They again reverse in amount of wages paid, number of employés, and in value of product, the cotton goods industry taking the lead in all these essentials. The cotton goods and boots and shoes industries exceed the million mark in amount of wages paid, being $1,265,446 and $1,091,638 respectively. The total amount of wages paid by the total number of establishments reporting was $5,777,161; total value of product, $21,151,826. Four industries report over a million dollars in value of product as follows: Cotton goods, $5,066,566; boots and shoes, $4,622,466; hosiery and knit goods, $1,338,800; lumber, $1,083,068. Wooden goods, machines and machinery, and woolen goods report value of product $995,421, $977,000, and $955,070, respectively. From that sum the value of the product dwindles down to $7,500, which amount is credited to photographic goods.

The 299 establishments considered employ 16,959 persons —11,507 males and 5,452 females. Of this number 4,542 are employed in the cotton goods industry, 55.78 per cent. of whom are females. In the boot and shoe industry 2,795 persons are employed, 29.62 per cent. of whom are females. Hosiery and knit goods employ 56.98 per cent.

females, the total number of employés being 1,597—males, 687; females, 910. The percentage of females employed in the clothing industry is still larger, being 67.03 of the entire number reported employed. The highest and lowest weekly wages reported paid males was $36 and $2 respectively; highest and lowest paid females $21 and $2 respectively.

The average number of days works were run by the 299 establishments reporting was 269, or 87.33 per cent. of full time, reckoned on a basis of 308 days for the year. The food preparations, liquors, oils and illuminating fluids, and soap and grease industries report running full time, and from that the number of days works were run dwindle down to 61.03 per cent. of full time as reported by agricultural tools.

The average proportion of business done by all establishments reporting, was 72 per cent. of a possible 100, the nearest approach to full capacity of plant being cotton goods, placed at 93, which is the only industry exceeding the 90 limit. Nine industries report 80 per cent. and upwards, eight industries 70 per cent. and upwards, eight industries 60 per cent. and upwards, and from that to 40, which is the lowest average percentage given.

Compared with the census of 1890, the above totals represent 22+ per cent. of the entire capital invested in manufacturing industries in the state, 24+ per cent. of total value of product and value of material used, 23+ per cent. amount wages paid, and 26 per cent. of the total number of employés.

One hundred and sixty-six establishments reporting in 1893 also reported in 1894, and hence we are able to make interesting comparisons. A perusal of Table 86 on page 487 indicates that while some branches of manufacture show an increase in capital invested, etc., they are more than offset by those showing a decrease. The total amount

of capital invested by the one hundred and sixty-six establishments reporting in 1893 was $14,968,161; in 1894, $14,488,890; a decrease in the latter year of $479,271, or 3.20 per cent.

The following industries exhibit an increase in capital invested in 1894 as compared with 1893 as follows: Boots and shoes, 20.94 per cent.; brick and drain tile, 1.46 per cent.; cotton goods, 0.36 per cent.; furniture, 7.06 per cent.; hosiery and knit goods, 4.13 per cent.; metallic goods, 2.88 per cent.; and industries incorporated under the head of "miscellaneous," 1.17 per cent. The following industries exhibit a decrease in capital in 1894 as compared with the previous year: Artisans' tools, 1.50 per cent.; boxes (paper and wood), 11.84 per cent.; building and contracting, 0.48 per cent.; carriages and wagons, 9.38 per cent.; chemical preparations, 48.19 per cent.; clothing, 17.92 per cent.; cooking and heating apparatus, 0.30 per cent.; food preparations, 8.27 per cent.; leather and leather goods, 38.37 per cent.; lumber, 5.46 per cent.; oils and illuminating fluids, 24.71 per cent.; printing and publishing, 8.97 per cent.; stone, 0.86 per cent.; wooden goods, 0.79 per cent.; and woolen goods, 15.23 per cent.

The percentages of increase range from 0.36 per cent. in cotton goods, to 20.94 per cent. in boots and shoes, and the percentages of decrease from 0.79 per cent. in wooden goods to 48.19 per cent. in chemical preparations. In machines and machinery, mixed textiles, and paper and paper goods, the capital invested remained the same in both 1893 and 1894.

It should be borne in mind that the term "capital" as herewith used, does not mean simply cash capital or capital stock, but includes amounts invested in land, buildings, fixtures, machinery, implements, tools, etc. These amounts included as capital are liable to cause great variation in same from year to year, causing a wide variance upon the

face of the returns, but this does not necessarily mean retrogression in the industry considered.

In value of material used by the one hundred and sixty-six establishments reporting, Table 87, on page 488, shows the amount in 1893 to have been $10,088,270; in 1894, $9,598,814; a decrease of $489,456, or 4.85 per cent. The following industries show an increase in value of materials used in 1894 as compared with 1893: Boots and shoes, 6.84 per cent.; brick and drain tile, 13.84 per cent.; building and contracting, 4.40 per cent.; clothing, 63.13 per cent.; cooking and heating apparatus, 20.50 per cent.; furniture, 7.41 per cent.; leather and leather goods, 102.60 per cent.; oils and illuminating fluids, 74.34 per cent.

Industries showing a decrease—Artisans' tools, 16.63 per cent.; boxes (paper and wood), 6.20 per cent.; carriages and wagons, 14.21 per cent.; chemical preparations, 20.93 per cent.; cotton goods, 11.22 per cent.; food preparations, 3.64 per cent.; hosiery and knit goods, 3.74 per cent.; lumber, 4.96 per cent.; machines and machinery, 1.43 per cent.; metallic goods, 41.12 per cent.; mixed textiles, 15.46 per cent.; paper and paper goods, 16.22 per cent.; printing and publishing, 13.78 per cent.; stone products, 6.61 per cent.; wooden goods, 7.94 per cent.; woolen goods, 23.88 per cent.; miscellaneous, 0.46 per cent.

The percentage of increase in value of material used varied from 4.40 in building and contracting to 102.60 in leather and leather goods, and the percentage of decrease from 0.46 in "miscellaneous" industries to 41.12 in metallic goods. In other words seven industries show an increase in value of material used and eighteen a decrease.

Table 88 on page 489 presents a comparison of the value of the product of the one hundred and sixty-six establishments reporting for the years 1893 and 1894. The total value of goods made and work done by these concerns was,

in 1893, $18,936,633, and in 1894, $16,312,963. This shows a decrease in the last named year of $2,623,670, or 13.85 per cent. Only four industries show an increase in value of product in 1894 over the preceding year:—brick and drain tile, 27.99 per cent.; building and contracting, 20.33 per cent.; cooking and heating apparatus, 20.19 per cent.; and printing and publishing, 0.17 per cent.; the latter showing the smallest per cent. increase, and the first named the largest per cent. increase.

The remaining twenty-one industries show a decrease in value of product, as follows: Artisans' tools, 15.66 per cent.; boots and shoes, 1.44 per cent.; boxes (paper and wooden), 19.13 per cent.; carriages and wagons, 12.99 per cent.; chemical preparations, 24.87 per cent.; clothing, 14.11 per cent.; cotton goods, 15.97 per cent.; food preparations, 4.10 per cent.; furniture, 3.82 per cent.; hosiery and knit goods, 11.30 per cent.; leather and leather goods, 6.02 per cent.; lumber, 3.82 per cent.; machines and machinery, 2.53 per cent.; metallic goods, 41.03 per cent.; mixed textiles, 7.50 per cent.; oils and illuminating fluids, 16.43 per cent.; paper and paper goods, 21.49 per cent.; stone products, 9.54 per cent.; wooden goods, 17.95 per cent.; woolen goods, 31.23 per cent.; miscellaneous industries, 21.89 per cent. Of the twenty-five industries covering the one hundred and sixty-six establishments considered, 19.04 per cent. show an increase in value of product in 1894 over the preceding year; and 80.96 per cent., a decrease in same for the same years; the entire number show a decrease in value of product in 1894, compared with 1893, of 13.85 per cent., as above stated.

The total number of employés employed by the one hundred and sixty-six establishments reporting for 1893 and 1894, as shown in Tables 89 and 90, on pages 490 and 491, was, in the former year, 14,320; by sexes, males, 9,257; females, 5,063. In the latter year, 13,537; by sexes, males,

8,705; females, 4,832. This shows a decrease in number employed in 1894 of 783, or 5.46 per cent.; the percentage decrease by sexes was 5.99 in male, and 4.56 in female, employés. Eleven industries show an increase in number of male employés in 1894 over the previous year, as follows: boots and shoes, 7.72 per cent.; brick and drain tile, 14.65 per cent.; building and contracting, 66.66 per cent.; carriages and wagons, 3.65 per cent.; chemical preparations, 9.09 per cent.; food preparations, 3.44 per cent.; furniture, 6.96 per cent.; leather and leather goods, 10.71 per cent.; machines and machinery, 9.79 per cent.; mixed textiles, 27.05 per cent.; stone products, 6.93 per cent. The food preparation industry shows the smallest increase in male employés, and building and contracting the highest.

Fourteen industries show a decrease in the number of males employed in 1894 as compared with 1893, as follows: artisans' tools, 13.77 per cent.; boxes (paper and wooden), 3.26 per cent.; clothing, 1.65 per cent.; cooking and heating apparatus, 6.06 per cent.; cotton goods, 16.33 per cent.; hosiery and knit goods, 7.61 per cent.; lumber, 9.16 per cent.; metallic goods, 30.65 per cent.; oils and illuminating fluids, 12.50 per cent.; paper and paper goods, 22.93 per cent.; wooden goods, 14.97 per cent.; woolen goods, 0.57 per cent.; miscellaneous industries, 26.62 per cent. The printing and publishing industry shows no change in number of male employés in 1893 and 1894.

Women are employed in eighteen of the twenty-five industries covering the one hundred and sixty-six establishments considered, the percentage of increase in number employed in 1894 over 1893 ranging from 3.38 per cent. upwards in six industries, and the decrease from 2.53 per cent. upwards in the remaining twelve industries. The industries in which no women are reported employed are: brick and drain tile, building and contracting, carriages and wagons, cooking and heating apparatus, food preparations, lumber, oils and illuminating fluids.

The facts relative to total amount of wages paid will be found in Table 91, on page 492. The total amount paid in wages by the 166 establishments reporting in 1893 and 1894 was, in the former year, $4,879,606; in the latter year, $4,397,607. These figures show a decrease of $481,999, or 9.87 per cent. By industries the percentage showing an increase in amount of wages paid in 1894 over 1893 was 32 as against 68 showing a decrease.

The percentage of increase in total amount of wages paid varied from 0.58 in the carriage and wagon industry to 48.19 in oils and illuminating fluids. The percentage of decrease in amount of wages paid from 0.52 in machines and machinery to 47.49 in metallic goods.

The following industries show an increase in total amount of wages paid in 1894 over 1893: Boots and shoes, 7.56 per cent.; brick and drain tile, 42.57 per cent.; building and contracting, 6.89; carriages and wagons, 0.58; clothing, 3.80; leather and leather goods, 8.45; mixed textiles, 11.96; oils and illuminating fluids, 48.19.

The following industries show a decrease in total amount of wages paid in 1894 over the preceding year: Artisans' tools, 15.67 per cent.; boxes (paper and wooden), 18.25 per cent; chemical preparations, 15.28; cooking and heating apparatus, 1.85; cotton goods, 19.47; food preparations, 2.60; furniture, 3.83; hosiery and knit goods, 5.77; lumber, 4.78; machines and machinery, 0.52; metallic goods, 47.49; paper and paper goods, 14.55; printing and publishing, 2.66; stone products, 5.09; wooden goods, 14.11; woolen goods, 11.69; miscellaneous, 17.73.

The average yearly earnings of the employés of the 166 establishments reporting in 1893 and 1894, as found in Table 92, on page 493, was $341 in the former year, and $325 in the latter, which shows a decrease of 4.69 per cent. in the latter year. By industries the average yearly earnings were as follows: Artisans' tools—1893, $443; 1894,

$437. Boots and shoes—1893, $389; 1894, $377. Boxes (paper and wood)—1893, $375; 1894, $343. Brick and drain tile—1893, $252; 1894, $314. Building and contracting—1893, $414; 1894, $265. Carriages and wagons—1893, $451; 1894, $437. Chemical preparations—1893, $236; 1894, $183. Clothing—1893, $261; 1894, $271. Cooking and heating apparatus—1893, $341; 1894, $363. Cotton goods—1893, $318; 1894, $280. Food preparations—1893, $671; 1894, $849. Furniture—1893, $208; 1894, $187. Hosiery and knit goods—1893, $258; 1894, $278. Leather and leather goods—1893, $706; 1894, $691. Lumber—1893, $348; 1894, $365. Machines and machinery—1893, $387; 1894, $361. Metallic goods—1893, $551; 1894, $412. Mixed textiles—1893, $419; 1894, $400. Oils and illuminating fluids—1893, $319; 1894, $536. Paper and paper goods—1893, $294; 1894, $320. Printing and publishing—1893, $339; 1894, $343. Stone products—1893, $507; 1894, $486. Wooden goods—1893, $373; 1894, $346. Woolen goods—1893, $351; 1894, $319. Miscellaneous industries—1893, $519; 1894, $546. The lowest per cent. of increase in average yearly wages was shown in printing and publishing, and the highest in oils and illuminating fluids, 1.17 and 68.02 respectively. The lowest and highest percentage of decrease in annual yearly earnings was 1.20 and 35.99, in the cotton goods and building and contracting industries respectively.

The apparent discrepancy in the average yearly earnings, as shown by the figures herewith given, and in the individual reports of wage-earners in the same industries elsewhere given in this report, is accounted for from the fact that the average, as shown by the manufacturers' reports, was obtained by dividing the total amount of wages paid in each industry by the aggregate average number of persons employed therein, which of course includes men, women, and children, which in the case of individual employés reporting to the bureau the estimate

was based on the wages of men alone, and they, without doubt, the most skilled in their respective employments. The first calculation would tend to show a low yearly average and the latter a high yearly estimate.

The highest weekly wages paid males in 1893 was $30; in 1894, $36; the lowest weekly wages paid males in 1893 was $2.50; in 1894, $2.12; this shows an increase of 20 per cent. and a decrease of 15.20 per cent. in the two extremes respectively. The highest and lowest weekly wages paid females in 1893 and 1894 was identically the same in both years, $21 and $2 respectively. The highest and lowest wages paid males and females in 1893 and 1894 by industries, and the percentage of difference in each are given in Tables 93 and 94 on pages 494 and 495.

The average number of days run by the 166 establishments in 1893 and 1894, as shown in Table 95, on page 496, was almost identically the same, being 272 and 269 respectively, a decrease in the latter year over the former of but 1.10 per cent. Reckoning 308 days as full working time, for the year, the 166 establishments in 1893 were in operation 88.31 per cent. of full time, and in 1894, 87.33 per cent.

Four industries show an increase in average number of days works were in operation in 1894 over 1893, varying from 0.69 per cent. in stone products to 45.63 per cent. in leather and leather goods, as follows: Building and contracting, 2.87 per cent.; chemical preparations, 39.98 per cent.; leather and leather goods, 45.63 per cent.; stone products, 0.69 per cent. Sixteen industries show an average decrease in number of days works were run in 1894 over 1893 of from 0.41 per cent. in wooden goods to 16.66 per cent. in artisans' tools and paper and paper goods, as follows: Artisans' tools, 16.66 per cent; boots and shoes, 6.11 per cent.; boxes (paper and wooden), 1.98 per cent.; brick and drain tile, 3.67 per cent.; carriages and wagons, 10.96

per cent.; clothing, 1.34 per cent.; cotton goods, 7.14 per cent.; furniture, 6.07 per cent.; hosiery and knit goods, 4.56 per cent.; lumber, 7.04 per cent.; machines and machinery, 1.96 per cent.; metallic goods, 1.48 per cent.; paper and paper goods, 16.66 per cent.; wooden goods, 0.41 per cent.; woolen goods, 4.18 per cent.; miscellaneous, 5.12 per cent. Five industries—cooking and heating apparatus, food preparations, mixed textiles, oils and illuminating fluids, printing and publishing—show no change in average number of days run for the years 1893 and 1894. The increase and decrease by industries is shown in Table 95 on page 496.

Table 96 on page 497 shows the average proportion of business done by the 166 establishments reporting in 1893 and 1894, and the proportion and percentages of increase and decrease between those years, by industries. In the instructions accompanying the inquiry as to percentage of business done during the year, all were told to state the proportion that the business bore to the greatest capacity for production of the establishment considered; that is, to consider the greatest capacity the amount of goods that could be turned out with the present plant and facilities, and the greatest number of employés for whom accommodations could be supplied without increase of plant, as 100, and to make their calculations upon this basis. While some evidently did so and made report accordingly, it is also clearly evident that others, and perhaps the majority, based their deductions upon number of days works were run rather than upon capacity of plant. Thus, if running 308 days, full time, they reported doing a business represented by 100, when in reality, according to the intent of the instructions given, the proportion of business done may not have been more than 50, 62, or 75 per cent. of the greatest capacity of the plant. Hence from the standpoint of greatest capacity, the percentages given are undoubtedly somewhat higher than the real facts would warrant giving.

In the 166 establishments making returns in both 1893

and 1894, the proportion of business done in 1893 is represented by 73.76 per cent. and in 1894 by 71.48 per cent., a difference of 3.09 per cent. Six industries show a larger proportion of business done in 1894 than in 1893, as follows: Brick and drain tile, 10.66 per cent.; chemical preparations, 25 per cent.; food preparations, 23.52 per cent.; hosiery and knit goods, 2.35 per cent.; leather and leather goods, 13.33 per cent.; oils and illuminating fluids, 1.88 per cent.

Nineteen industries show a smaller proportion of business done in 1894 than in 1893, the percentages of decrease varying from 1.33 per cent. in machines and machinery to 17.33 per cent. in artisans' tools, as follows: Artisans' tools, 17.33 per cent.; boots and shoes, 7.46 per cent.; boxes (paper and wood), 16.66 per cent.; building and contracting, 5 per cent.; carriages and wagons, 3.61 per cent.; clothing, 2.94 per cent.; cooking and heating apparatus, 2.19 per cent.; cotton goods, 8 per cent.; furniture, 13.69 per cent.; lumber, 3.07 per cent.; machines and machinery, 1.33 per cent.; metallic goods, 5.88 per cent.; mixed textiles, 2.10 per cent.; paper and paper goods, 16.32 per cent.; printing and publishing, 10.52 per cent.; stone products, 3.94 per cent.; wooden goods, 3.27 per cent.; woolen goods, 10.11 per cent.; miscellaneous industries, 7.35 per cent.

The nine establishments incorporated under the head of cotton goods, is the only industry that reached its greatest capacity of production, 100 per cent., either in 1893 or 1894, which was recorded in the former year. In 1894 the same concerns produced 92 per cent. of greatest capacity. In hosiery and knit goods, the percentage of greatest possible output was substantially the same for both 1893 and 1894, being 85+ and 87+ respectively. The relative production for the two years in the mixed textile industry was 95+ and 93+ per cent.; paper and paper goods, 98+ and 82+ per cent., respectively. The industries showing 75 per cent. and upwards of greatest capacity of output for

1893, were artisans' tools, brick and drain tile, carriages and wagons, cooking and heating apparatus, cotton goods, hosiery and knit goods, leather and leather goods, machines and machinery, mixed textiles, paper and paper goods, printing and publishing, stone products, woolen goods. In 1894, but nine of the thirteen industries here named equalled their 1893 production. In only one industry—food preparations—did the output exceed 75 per cent. of greatest capacity in 1894, which showed a much less than 75 per cent. in the year previous. In chemical preparations is found the lowest percentage for the two years, the proportion of business done being less than one half of the productive capacity of the establishments included in that industry.

The summaries permit the following condensed general statement for the years 1893 and 1894 for the one hundred and sixty-six establishments considered: Capital invested in 1893, $14,968,161; in 1894, $14,488,890; showing a difference of $479,271, or a decrease of 3.20 per cent. In cost of material, or value of stock used, there was a decrease of 4.85 per cent. in the latter over the former year, the amount in 1893 being $10,088,270, and in 1894, $9,598,814, a reduction of $489,456. The value of product or output in 1893 was $18,936,633; in 1894, $16,312,963; showing a decrease of $2,623,670, or 13.85 per cent.

In number of employés there was also a reduction. In 1893, the employés numbered 14,320, and in 1894, 13,537; a difference of 783, or 5.46 per cent. By sexes the number of male employés in 1893 was 9,257; in 1894, 8,705; female employés, 1893, 5,063; 1894, 4,832. These figures show a reduction of 552 in number of male employés in 1894, or 5.99 per cent.; in number of female employés, 231, or 4.56 per cent.

The total amount of wages paid by the 166 establishments represented in the 25 industries considered show

a decrease of 9.87 per cent. in 1894, as compared with 1893, the amount in 1893 being $4,879,606, and in 1894, $4,397,607, a difference of $481,999. The average yearly earnings per individual, without regard to sex or age, were, in round numbers, $341 in 1893, declining to $325 in 1894, a decrease of 4.69 per cent.

The average number of days works were in operation also show a decrease. In 1893 the average was 273 days, and in 1894, 269 days, or a decrease of 1.46 per cent. The average percentage of days run, calculated on a basis of 308 days for the year, or 100 per cent., was, in 1893, 89.28 per cent., and in 1894, 87.66 per cent.

The average proportion of business done reached 73.75 per cent. in 1893, and 71.48 per cent. in 1894 of the full productive capacity of the 166 establishments considered, a decrease of 3.07 per cent. It will thus be seen that in capital invested, in value of stock used, in value of product, in number of employés, in total amount of wages paid, in average yearly earnings per individual, average number of days works were in operation, in average proportion of business done, in fact, in all the various avenues of manufacturing interests, there was a marked decrease in 1894 over 1893. Although the establishments considered represent but about one quarter of the manufacturing interests of the state in their most essential features, the conclusions arrived at will apply relatively to our entire manufacturing industries.

INDUSTRIAL CHRONOLOGY—1894.

ALLENSTOWN. In February, China Manufacturing Co. (Suncook) put in seven upright boilers, to take place of sixteen horizontal boilers.

ASHLAND. In January, Ashland Knitting Co. resumed operations after several months' suspension.

BARTLETT. In January, Bartlett Lumber Company organized, and succeeded to the lumber business of Smith & Blanchard.—Sawmill of Fletcher & Co. burned. *July.* The N. H. Lumber Company incorporated, capital $200,000.

BATH. In January, Bath Lumber Co. employed 100 men, and ran three logging teams daily to their works. *July.* New Hampshire Lumber Co. filed articles of incorporation, capital of $200,000.

BENNINGTON. In March, Goodell Co. of Antrim purchased from the Stewart Bros. of Greenfield the water privilege on the Contoocook river at Bennington village, and will establish an electric light and power plant for Antrim, Bennington, and vicinity.

BERLIN. In February, Berlin Mills Co. began a new time schedule, running on half time, until noon six days per week, to avoid shutting down part time. 40,000,000 feet is the annual cut of this company. *March.* Glen Manufacturing Co. shut down mill Number Four for an indefinite period. The capacity of the six mills of the company is probably the largest of any paper mill plant in the world, the product being ninety tons of news paper daily.

BETHLEHEM. In January, Waumbeck Mills leased to Bath Lumber Co.

BOSCAWEN. In November, Dustin Island Woolen Co. incorporated, capital $40,000.

BRENTWOOD. In January, J. H. Fellows rebuilt box shop, with increased facilities and improved machinery.

BRISTOL. In January, Dodge-Davis Manufacturing Co. reduced wages ten per cent.—Calley & Currier commenced running crutch shop on short time.—Mason & Perkins paper mill closed indefinitely.—Mason & Perkins Paper Co. start up after a shut-down of one week.—Bristol Creamery Association organized.—Hutchinson Bros., woolen goods, began running works until midnight six days a week. *March.* Exemption from taxation for ten years voted to Nathaniel Bartlett & Son, shoe factory. *August.* Nathaniel Bartlett & Son, shoe shop (four-story wooden structure, 75x32 feet, heated by steam, lighted by electricity) commenced operations. *November.* Dodge-Davis Manufacturing Co. increased wages ten per cent.

CANDIA. In January, Dearborn Bros., shoe manufacturers, put in new machinery at East Candia.

CHARLESTOWN. In February, Joseph G. Briggs, shoes, died, aged 64.

CHESTERFIELD. In January, works of Impervious Package Co. shut down.

CLAREMONT. In February, Balcom Woolen Mills resumed operations after a brief suspension.—Daniel W. Johnson, cotton manufacturer, died, aged 67. *July.* Monadnock Mills shut down for four weeks for repairs.

COLEBROOK. In January, the bobbin mill, after a brief shut-down for repairs on machinery, resumed on full time. *March.* Bobbin mill of J. K. Atwood burned. *April.* Colebrook Creamery Co. incorporated, capital $40,000.

November. Grist-mill of Calvin F. Rich, and saw-mill of James W. Spencer burned.

COLUMBIA. In January, Last-Block Factory resumed operations.

CONCORD. In January, The Concord Machine Co. began the use of triphase motor, for power.—Harris Woolen Mills commenced running three days a week.—Haley Manufacturing Co.'s plant partially destroyed by fire.—Haley Manufacturing Co. assigned. *February.* Page Belting Company made a reduction of ten per cent. in wages.—The Granite State Chair Co., manufacturers of chairs for export trade, succeeded George T. Comins Company, state prison contract.—E. B. Hutchinson Co. succeeded E. B. Hutchinson, builder and contractor.—George A. Foster chosen assignee of Haley Manufacturing Co. *March.* William P. Ford & Co.'s foundry resumed operations after six weeks shut down.—Work resumed at Haley Manufacturing Co.'s works, under management of assignee.—William L. Collins, manufacturer of cigars, assigned. *April.* Walter S. Baker, manufacturer of clothing, removed to First National Bank building.—Granite State Manufacturing Co. incorporated.—Wire plant of Haley Manufacturing Co. sold to Carpenter Steel Co., Reading, Pa. *May.* The Granite State Manufacturing Co. increased its capital stock from $50,000 to $100,000.—Abbot-Downing Co. commence running ten hours a day for five days a week.—Puritana Compound Co. incorporated, capital $112,000. *June.* Fishervilleville Sovereigns' Coöperative Association disposed of its grocery department. *July.* Concord Street Railway extended to Contoocook River Park. *August.* Firm of Stratton, Merrill & Co. (flouring mills) dissolved by death of Mr. Merrill, surviving partners reorganize under same firm name.—Isaac Kimball Gage, saws, died, aged 76. *October.* Concord Axle Works at Penacook shut down for a brief period.—Standard Manufacturing Co. incorporated, capital $100,000. *November.* Beecher Falls Co. incorporated, capital $125,000.

CONWAY. In January, fifty-two stone cutters discharged from Redstone quarries.—Maine and New Hampshire Granite Co. secure a $500,000 contract. *May.* Box factory of Woodworth Mason Co. burned.

CORNISH. In May, grist-mill of Bert Chellis burned.

DORCHESTER. In May, saw-mill of W. R. Park burned.

DOVER. In January, Hurd's shoe factory shut-down for an indefinite period.—Sawyer Woolen Mills made a reduction of ten per cent. in rents to their tenants.—Sawyer Woolen Mills start up lower mill after a shut-down of several months.—Moulton's shoe shop working over-time to meet orders.—Supt. D. D. G. Langlands severed connection with Somersworth Machine Works. *May.* Cocheco Manufacturing Co. shut-down for an indefinite period. *August.* Sawyer Woolen Mills resumed running six days a week. *September.* Boston & Maine railroad shops burned, loss on workmen's tools $2,500. *November.* Hon. James Bennett, shoes, died, aged 78.

EFFINGHAM. In April, manufacture of ladder stock was commenced, a new industry for town.

ENFIELD. In January, Baltic (formerly Greenbank) Mills started up and commenced running night and day, with increase in capacity of plant by the addition of new machinery, a dye-house, and enlargement of electric light system. *February.* Lumber mills at Enfield Centre shut down on account of low water. *October.* Enfield Shakers sold mill property and water rights. *December.* Enfield Pink Granite Co. organized, capital $10,000.

EXETER. In January, Gale Bros., shoes, incorporated, capital $205,000.—Ten per cent. decrease in wages at Exeter Machine Works. *August.* Exeter Manufacturing Co. resumed operations, having remained idle since mill was burned in March, 1893; new mill runs 575 looms and 21,000 spindles, producing an annual output of 4,250,000 yards of cloth.—Factory formerly occupied by

Rockingham Machine Co. (prior to removal to Pawtucket, R. I.) leased to G. H. Cogswell & Co., Haverhill, Mass., shoe manufacturers. *December.* Gale Bros., shoes, running full time and full capacity.

FRANKLIN. In January, Mayo machine shops burglarized. *February.* Cut of fifteen per cent. in wages by Franklin Needle Co.—Stevens' Woolen Mill resumed operations. *May.* Walter Aikens' Sons succeed to business of Walter Aiken's Hosiery Mills.—J. B. Tuttle purchased interest of Lewis Bushway, of Bushway & Eastman Carriage Factory.

GILSUM. In February, Gilsum Woolen Manufacturing Co. began running four days a week.

GOFFSTOWN. In December, sash and blind works of Kendall, Hadley & Co., running twelve hours daily.

GORHAM. In January, E. Libby & Sons add dry kiln and force pump to lumber mill plant.

GRAFTON. In January, saw mill of S. R. Truell burned.

GREENFIELD. In January, soapstone mill run seven hours a day. *May.* Saw mill of R. K. Upton burned.

GREENVILLE. In March, Columbian Manufacturing Co. commenced running on half time.—Cut-down and shut-down at cabinet shop. *July.* Columbian Manufacturing Co. discontinue shipment of goods to western points, on account of great railroad strike.

GROTON. In May, saw mill of Taylor & Merrill burned.

HAMPTON. In February, vacant shoe shop of Hampton Building Association sold at auction.

HANOVER. In August, Etna Creamery Co. increased capital stock.

HAVERHILL. In August, Haverhill Granite Co. organized, and purchased property and good will of Black Mountain Granite Co.

HENNIKER. In April, Pinkham & Foster, Haverhill, Mass., leased for ten years the Chase-Chamberlin shoe factory.

HILL. In January, Adams Needle Co. shut down for an indefinite period. *February.* Adams Needle Co. resumed operations.

HINSDALE. In January, Haile & Frost Woolen Mills Co. run portion of plant three quarters time, and ten per cent. reduction in wages.

HOOKSETT. In January, David A. Kimball, brick, died, aged 71. *March.* Second cut-down of ten per cent. in wages at Hooksett mills.

HOPKINTON. In March, saw mill of Whittier Bros. burned.

JACKSON. In January, Lee & Plummer of Conway built saw mill. *February.* Lumber factory of Lee & Plummer destroyed by fire.

KEENE. In January, Nims & Whitney, sash and blinds, cut down to eight hours. John A. Wright & Co., manufacturers of polishes, organized, capital $30,000.—H. R. Parker made addition to wood-working mill plant.—Dunn & Salisbury started chair factory with reduction in hours of labor and wages. *February.* Beaver Mills Co. commenced running ten hours, with twelve and one half per cent. reduction in wages.—C. B. Lancaster, shoes, reduced wages ten per cent. *June.* Indurated Paper Co. incorporated, capital, $40,000.

LACONIA. In January, Halifax Mills (hosiery) made third reduction in wages.—H. H. Wood & Co. (hosiery) resumed operations, after shut down of a month.—Hodgson & Holt, hosiery (Belknap Mills) running two-thirds time.—Busiel Mill started up two sets of cards. *February.* Fred Rowe commenced manufacture of hosiery, at mill vacated by Laconia Manufacturing Co.—Wardwell Needle Co. resumed work on full time.—Cole Manufacturing

Co. (car axles) running day and night. *March.* A. J. Farrar appointed assignee of estate of Laconia Manufacturing Co.—Factory established for manufacture of improved hose connection for steam brakes on railway trains, patented by local inventor. *April.* Estey Mill, hosiery, leased for sixteen years to Max Dormer of Cincinnati, O. *May.* Esty Hosiery Co. incorporated, capital $50,000. *June.* Laconia Lumber Works reduce wages ten per cent.—Laconia Car Works destroyed by fire, loss $100,000. *July.* Hon. John C. Moulton, hosiery, died, aged 87. *November.* Flexible Joint Manufacturing Co. incorporated, capital $10,000.—Busiel Hosiery Mill, after a shut-down of two months, for repairs, started up with a new plant of Hercules water wheels of 150 horse power.—F. D. Cook Lumber Co. incorporated, capital $50,000.

LANCASTER. In January, Frank Smith & Co., grist mill, purchased land and water power on Israel's river, formerly used by Marshall carriage factory. *February.* P. J. Noyes Manufacturing Co. commenced running full time. *August.* Israel's River Creamery Co. purchased Stevens' Creamery of East Lancaster.—Amadon Paper Co. incorporated, capital $50,000.

LEBANON. In January, Harry B. Jackson admitted to firm of H. W. Carter & Co., manufacturers of overalls. *February.* Second reduction of ten per cent. in wages at Mascoma flannel mills.—Riverside Woolen Co. running at half capacity. *March.* The Carter & Churchill Co., manufacturers of overalls and clothing, incorporated, capital $75,000.—Kendrick & Davis purchase patents, machinery and tools of Burch Key Co. of Brooklyn, N. Y., and add same to their key shop plant.—Riverside Woolen Co. add dye house to plant. *April.* Work at Freeto quarry commenced under management of J. M. Ellis of Woburn, Mass., upon a $100,000 contract for stone. *May.* Riverside Woolen Manufacturing Co. incorporated, capital $35,000.

LISBON. In February, Parker & Young Manufucturing Co. increase number of employés and run works on full time. *July.* Lisbon Creamery Co. increase capital stock. *August.* Aretas Blood peg mill closed for the season.

LITTLETON. In January, the Saranac Glove Co. add a 300-light dynamo to its plant.—Porter B. Watson, gloves and leather, died, aged 69. *February.* Saranac Glove Works running four days a week. *March.* Saranac Glove Works running five and one-half days a week. *August.* Steam saw mill of Cardinal & Sons shut down for three months.

LYME. In January W. A. Bingham, tanner, died, aged 68.

MANCHESTER. In January, Olzendam hosiery mill, running on half time, increased to five days a week, with a reduction of ten per cent. in wages.—Manchester Mill, worsted department, running on two-thirds time. Print works running full capacity. Two large new pattern printing machines added to print works plant.—Employés of Manchester Print works begin work at 6:40 a. m., instead of 7 o'clock.—Starting up of foundry department of Manchester Locomotive Works is followed by a 20 per cent. reduction in wages.—Emergency Hand Fire Extinguisher Co., incorporated, capital $5,000.—Universal Weeder Co. reduce capital stock from $12,000 to $6,000. *February.* The Stark Mills running eight looms a day, five days a week.—Portion of Manchester Mills resume full time.—Devonshire Mills at Goffe's Falls start up on full time, after several months of short time, with wages reduced ten per cent. in all departments. *March.* F. M. Hoyt Co., shoe factory, running over time.—Kimball Bros.' factory running full time.—Crafts & Green shoe factory running full time, and turning out two-thirds of capacity.—Corey Needle Works running full time, after four months at two-thirds time.—Machine shop of S. C. Forsaith Company burned.—B. P. Brooks Co. incorporated, capital, $1,000.—Leighton Machine Co. incorporated, capital $50,000. *April.* Eureka Shoe Co. incorporated, capital $50,000.—Manchester Locomotive Works resume operations ten hours a day.—F. I. Lessard & Co. bakery burned.—Noll Paper Box

shop removed, and capacity increased. *May.* Eaton Heights Shoe Co. incorporated, capital $50,000. *June.* Brodie Electric Co. incorporated, capital $25,000. Paper Box factory of Charles Noll partially burned, loss $10,000.—Manchester Print Works close for a brief period to make repairs.—Box shop of Head & Dowst Co. burned. *July.* Box Works of Charles Noll add a department for manufacture of cigar boxes.—Changes in the running machines of Amoskeag No. 3 mill, made necessary by short water supply.—McCrillis carriage factory burned. *August.* Sash and Blind works of W. F. Hubbard destroyed by fire.—An engine cylinder-head in Mill No. 6 of Manchester mills blew out, necessitating closing mill a month for repairs.—Amoskeag Manufacturing Co. start up mills to run forty hours a week. *October.* Fred Allen Co. incorporated, capital $3,000. *November.* Beaudry Automatic Machine Co. incorporated, capital $48,000.—Eureka Shoe Co. incorporated, capital $50,000.—Redman & Eaton Shoe Co. incorporated, capital $35,000.

MARLOW. In October, Hon. James Burnap, tanner, died, aged 78.

MEREDITH. In Febuary, Meredith Electric Light Co. incorporated, capital $8,000.

MERRIMACK. In February, Burbank's overall shop started up full time. *November.* Hon. William T. Parker, clothing manufacturer, died, aged 72.

MILFORD. In January, hosiery mill of Bartlett & Son shut down for an indefinite period. *February.* Paint shop of J. A. Brahaney destroyed by fire. *April.* Milford Telephone Co. incorporated, capital $1,000.—A. Heald & Son increase capacity of works by addition of new building. *June.* Bleachery of John Quinland burned. *August.* Stevens Granite Co. incorporated, capital $20,000.

MILTON.—In February, shoe factory at Milton Mills started up after a long shut down.

NASHUA. In January, E. A. Boutelle Medicine Co. incorporated, capital $2,000.—Flather Bros. machine shop shut down for an indefinite period.—Employés at Brackett's shoe factory working eight hours a day.—Sands & Brown Manufacturing Co., incorporated, capital $15,000.—Reduction in working time at factory of Blanchard Churn Co. *February.* Neurotic Medicine Co., incorporated, capital $30,000.—Cut in wages at Campbell's box shop. *March.* E. P. Barrett Manufacturing Co., incorporated, capital $250,000.—Dorcas Medical Supply Co., established a packing, printing, and shipping department. *April.* Furniture factory of Howard & Co., burned. *May.* Nashua Concrete Co., incorporated, capital $5,000.—Hon. Charles Williams, iron founder, died, aged 78. *June.* Rome Maleable Iron Co. unite with Nashua Saddlery and Hardware Co.—Nashua and Jackson companies' mills reduce hours of labor.—Nashua company's mill stops one thousand looms. *July.* Nashua and Jackson companies' mills resume full time.—Vose Edge Finishing Co. incorporated, capital $100,000.—Shoe factory of Moody, Estabrook & Anderson, running at full capacity.—Nashua Boot and Shoe Co., running full time.—Nashua iron and steel works start up on full time. *August.* The thirty-foot fly-wheel of the great Corliss engine at Nashua Co.'s plant burst while running at high speed (the wheel had a sixty-inch face, and was driving two twenty-eight-inch belts, one hundred feet a second) causing damage of more than $10,000. *October.* American Heat, Light, and Power Co., incorporated, capital $1,000,000. *November.* Cook-Roby-Swart Co., incorporated, capital $15,000.—Nashua Spool and Bobbin Co., incorporated, capital $10,000.

NEW IPSWICH. In January, saw-mill of Nelson & Sawyer burned.

NEWMARKET. In March, Newmarket Manufacturing Co. make a reduction of ten per cent. in wages, and a like reduction in rents to its tenants; later in

the month closed their mills for an indefinite period. *May.* Wages of Newmarket Manufacturing Co. increas d ten per cent.

NEWPORT. In January, Peerless Manufacturing Co. resume operations on full time. *February.* Peerless Manufacturing Co. running on half time.—Radical cut in wages at Newport shoe factory.—New Hampshire Mica Mining Co., incorporated, capital $250,000. *July.* Peerless Manufacturing Co. shut down.

NEWTON. In January, box mill at Newton Junction running half time.—*February.* Canning factory of Bartlett & Peaslee burned.—Shoe shop of Charles M. Rowell burned.

NORTHFIELD. In January, shoddy mill of O. G. Morrison burned. *February.* Granite mill started up on full time.

NORTHWOOD. In January, shoe shop closed for an indefinite period. *April.* Box shop of J. R. Towle & Sons burned.

ORFORD. In May, saw-mill of Hodge & Carr burned.

OSSIPEE. In January, S. P. Wallace completes new paint shop.

PEMBROKE. In February, works of Suncook Painting Co. burned.—Webster Manufacturing Co. erect tower on mill, to support large water tank for furnishing water for automatic sprinklers in mill.

PETERBOROUGH. In January, Peterborough Manufacturing Co. discharge a portion of its employés.—Peterborough shoe factory closed. *March.* Peterborough Improvement Co. sells its entire plant, including real estate, to Protector Rubber Felt Co., Portland, Me.; the factory is a new structure, 200x45, five stories in height. *March.* Town voted exemption from taxation for ten years to Dickinson Ivory Co., and Protector Rubber Felt Boot Co. *May.* The Bell mill, of Dickinson Ivory Co. completed. *November.* Lowell Box and Lumber Co., incorporated, capital $25,000.

PITTSFIELD. In March, Pittsfield Mills reduce wages ten per cent. *June.* Pittsfield Mills change daily hours of labor, to give half holiday to employés, —Knowles & Poole shoe factory reduce wages 10 per cent. *August.* Pittsfield Mills shut down for repairs upon mills and dam.—Town voted exemption from taxation for ten years to W. F. Morgan Shoe Manufacturing Co., and to the C. B. Lancaster Shoe Factory.—Riverside Manufacturing Co. incorporated, capital $10,000.

PLYMOUTH. In July, plants of Eastern Lignoid Casket Co., Alden & Woods Fibre Co., and Dearborn Bros.' tannery, at Livermore Falls, burned.

PORTSMOUTH. In January, Portsmouth Shoe Co. increase number of employés and run full time.—Twenty shoe cutters discharged by Portsmouth Shoe Company. *May.* Portsmouth Brewing and Bottling Company purchased by J. G. Towerson of Wigton, Eng., and George A. Mudge of Portsmouth. *June.* Portsmouth Brewing and Bottling Co. incorporated, capital $50,000. *August.* George Bilbruck, brewer, died, aged 75.

ROCHESTER. In January, overseers of Norway Plains Co. Mills organize an association. *February.* Gonic Manufacturing Co. resume full time, with a ten per cent. reduction in wages.—Employés of Consolidated Heat and Power Co. (which operate the electric lights in Somersworth and Rochester, and control the Union Street Railway) attach the city of Rochester for money due for services. *April.* Pearl Square Auger Co. lease land for erection of factory and open an office in Boston. *June.* The tannery of E. G. & E. Wallace burned. *July.* Rochester Foundry and Machine Co. purchased by J. C. Fernald.—Entire plant of Norway Plains Co. offered for sale at appraisers' value, $118,000. *August.* Nute Brothers Shoe Manufactory sold at auction to George Colburn of Colburn, Fuller & Co., of Boston. *October.* Hon. Edwin

Wallace, tanner and shoe manufacturer, died, aged 71. *November.* Feineman Bros. lease McDuffie Hall, for a clothing manufactory.—Wallace Shoe Factory receives its power from its own dynamo.

ROLLINSFORD. In August, Salmon Falls Manufacturing Co., shut down on account of low water.

RUMNEY. In March, Belden Mica Co., commenced manufacture of mica quartz and feldspar products. *July.* F. E. Baldwin Mica Co., ship first carload of ground mica to Boston.

SALEM. In January, T. H. Russ shoe factory resumed operations on full time.

SOMERSWORTH. In January, Somersworth Machine Co., shut down for a few weeks. *February.* One thousand looms in Great Falls mills stopped for an indefinite period. *June.* Mills of Great Falls Manufacturing Co., running on half time. *July.* Machine shop of F. G. Kibmon, and laundry of G. L. Berry, burned.—Shoe factory of Houghton, Hebard & Warren running full time. *August.* C. D. Pecker & Son remove factory to Amesbury, Mass.

SOUTH NEWMARKET. In August, Swampscott machine works shut down, first time in half a century, and advertised its plant for sale.

STODDARD. In November, Christopher Robb, lumber, died, aged 67.

STRATHAM. In March, B. Franklin Folsom, fertilizers, died, aged 69.

SWANZEY. In March, box factory of O. Sprague, burned.

THORNTON. In January, Emmons Bros'. bobbin mill started up on full time.

TILTON. In February, new cards and an eighty horse power boiler added to Morrison's shoddy mill plant.

WARNER. In February, Merrimack glove works running on two thirds time.—Eighty thousand hubs were turned out at C. W. Redington's hub factory last year. *July.* Merrimack Glove Co. mill shut down for an indefinite period. *September.* Evaporating works of Arthur Thompson burned.—Samuel H. Dow, lumber, died, aged 76.

WEARE. In January, shoe factories of L. M. Sawyer, and George Simons & Son, shut down for an indefinite period.

WENTWORTH. In March, bobbin mills of Knight & Crosby burned.

WHITEFIELD. In April, Bowker & Howard creamery, incorporated, capital, $12,000.

WINCHESTER. In January, Winchester tannery running at full capacity.—Winchester tannery Co., incorporated, capital $75,000.—E. C. Thayer's woolen mills, running on two thirds time.—Dickinson's box shop at Fuller's dam, shut down for an indefinite period. *February.* E. C. Thayer's mill, No. 1, resumed operation on full time, with a cut of fifteen per cent. in wages.

WINDSOR. In August, clothes-pin factory of John G. Dodge, operated by Purdy & Co. of Milford, burned; loss $12,000; no insurance.

APPENDIX.

DEDICATORY ADDRESS.

One of the grandest charities of any labor organization in the world is the Childs-Drexel Home for union printers, located at Colorado Springs, Col. The project received its first decided impetus through a gift of $10,000 from the late George W. Childs and Anthony J. Drexel of Philadelphia, the memory of whom is enshrined in the hearts of all philanthropic people, and especially revered by the printing craft of the country. This gift, supplemented by contributions from union printers, made the splendid home possible, and it now stands as a fitting monument to the enterprise and liberality of the International Typographical Union and its membership.

The exercises attending the dedication of the home, which occurred May 12, 1892, were of an elaborate and entertaining character. The principal orator of the day was Senator Jacob H. Gallinger, of New Hampshire, a former printer and member of the International Typographical Union, who delivered an eloquent and able address, a reprint of which, taken from the *Colorado Springs Gazette*, is herewith given. It was the intention of the late George W. Childs to have had the address printed in book form, but owing to his early sickness and death following its delivery, it was not done. We gladly give it permanency in the appendix of this report.

In its delivery Senator Gallinger used a manuscript for occasional reference only, and his words left a lasting impress upon his hearers. He said:

> The progress of the world is marked by epochs, not by days; by events, not by prophecies; by fulfilments, not by promises.
>
> We live in an age of tremendous purposes and startling realities.

The stage coach that once rumbled through your mountain passes has been superseded by the express train, driven by the power of steam. The post-horse has given way to the telegraph, and communication by messenger has been supplanted by the fast mail and the telephone. It is an age of invention—an era of discovery. Old things are being forgotten, and the restless brains of busy men are working out the problems of the present, and trying to penetrate the mysteries of the future. But notwithstanding the marvelous discoveries of the past few years we are but approaching the dividing line which separates human ignorance from the fields of knowledge which lie beyond. Without a doubt many of the mysteries of the present will soon be revealed, and nature will yield to man a knowledge of things which now are hidden from human eye and human understanding. It is reasonably certain that the motive power of the future is to be that great force which the printer, Franklin, did so much to develop. Railroads, steamships, machinery, are all to be driven by it, and who knows but the dreams of the enthusiasts who have been trying for so long a time to overcome the difficulties of aerial navigation may be fulfilled through the instrumentality of this same wonderful agent, drawn from the clouds to do the will of man. Certain it is that the discoveries and inventions of the past are but an earnest of the greater triumphs of the future in the field of scientific research and human progress. And while we may scout the idea advanced by M. Camille Flammarion, the celebrated French astronomer, in a recent communication to *The New Review*, that we may before long be able to hold communication with the inhabitants of Mars, he certainly expresses a great truth when he says that "we stand but at the vestibule of knowledge of the universe."

The rude implements of Gutenberg, by means of which he made a printed page, would seem strange to modern typographic art, and the recent inventions in all departments of human endeavor have far outstripped those of former years. "The Western Territories," once said a distinguished statesman, "can never become states of the Union, for the reason that their representatives cannot get back and forth to the nation's capital." But steam and electricity have solved the problem of transportation, and the mighty states of the west are in direct touch not only with our own capital, but also with the capitals of all the nations of the world. To-day, under the shadow of yonder magnificent mountain range, in the immediate vicinity of the Garden of the Gods, more than half way across the continent, we assemble to dedicate this beautiful home. A few days ago we left the capital of this great nation, where momentous questions are being discussed, to give a day to a duty more important than most legislation, and more far-reaching in its beneficence than much of the work done by the law makers of the government. For after Congress has legislated, and the press has thundered its anathemas or its praises, unless men's hearts are touched by benevolent impulses and fired by charitable deeds, the

best interests of humanity are still neglected and the world's real advancement delayed. [Applause.]

Fortunately, the progress of humanitarian ideas and charitable plans has kept pace with the discoveries of science and the development of human skill. No former age of the world dreamed of such colossal gifts and such grand plans for the elevation of the people and the amelioration of human suffering as mark the closing years of the century in which we live. Universities, hospitals, asylums, and sanitariums, homes, built by private enterprise and supported by private benevolence, abound on every hand. The millions which the great heart of California's noblest citizen has given to the cause of education is matched by the less pretentious but equally magnificent gifts of those who feel a care for the aged and the poor, whose life-work is practically done, and whose few remaining years can be cheered and lighted by the love of universal kinship and the tenderness and helpfulness of human affection.

As an illustration of the changed condition of things it may be remarked that after a desperate struggle to make his art productive of even the bare necessities of life, John Gutenburg, the inventor of the art of printing with movable types, died in poverty and neglect in February, 1468. His genius brought forth the discovery which revolutionized the world, threw the light of intelligence upon its dark ignonorance and superstition, and kindled in man new and better aspirations. But he was harassed with vexatious litigation, cramped by poverty, and in the decline of life, when men look for relaxation from labor, he was deprived of his outfit by his partner, Faust, and compelled to equip himself anew with the crude hand-made materials of his craft. His trials, his disappointments, and his sufferings have been the common heritage of great inventors; but there was denied Gutenberg, what is often vouchsafed to others, the privilege of beholding the fullness of his creation, and to dream of the glory wreathed about his name by succeeding generations.

Gutenberg's invention was not in a century of appreciation. The clouds of the Dark Ages still enveloped the earth, and superstition was a potent force in the world. America had not been discovered. The spinning wheel, the telescope, and the knowledge of the circulation of the blood were of a later date. The reformation of Luther was nearly a century after Gutenberg printed his first Bible. Printed books were luxuries only less expensive than the ponderous written volumes that preceded them, and where dense ignorance prevailed there was little demand for the costly products of the first printing presses. In such times lived the first printer, and it is not strange that, amid such surroundings, he should have found little commercial value for his art, and less appreciation of his genius.

But more than four hundred years after Gutenberg's death there is erected here a Home for the superannuated disciples of the first

printer. [Applause.] In a sense it is a monument to his memory, and a tribute paid by benevolence to his genius. In the care for his aged followers the nineteenth century honors him who, in a benighted age, lifted the veil which shut out the light of intelligence, and laid the foundation for the marvellous enlightenment of the present.

There must be in printers' ink an inspiration to generosity and even prodigality, so few of the craft ever become rich. [Laughter.] That fellow-feeling that makes all the world akin glows ever in the heart of the printer, opening his purse to the needy, and his soul to the suffering. His couch is freely shared with the homeless craftsman, his case is at the service of the wanderer, and his last ration is fairly divided with one who knows not where to get his daily bread. Nor is his bounty or his charity circumscribed by guild lines. Who so hospitable everywhere as a printer? Who so quickly touched by the appeal of the afflicted? Thrift may not be one of his virtues, but niggardliness is not one of his failings. He is to share generously with others. He has no isolated pleasures. His presence is never burdened with the gloom of to-morrow. "Sufficient unto the day is the evil thereof" is the creed that too often scantily clothes and feeds him and his family. Yet the world is the better for his coming. He has scattered smiles of gladness along its pathway. He has illumined its night. He has brushed away the tears from some faces even if they have stolen silently down his own. He has lifted here and there a cloud, that sunshine might penetrate a saddened heart. And when at eventide we measure his life's work, and set off against his failings his many kindly acts, we find that he has earned a home even if he has not made one. [Applause.]

The printer's case is the training school of some of the best thinkers of the age. The range of inquiry incited by it is boundless. It embraces all subjects. It is fettered by no restrictions. The contest is still going on between the advocates of a prescribed course of study in our colleges and those who favor elective studies, but there is no controversy over the curriculum of the printing office. Its English is the best. It must be correct; it is often classical. It may be poetical; it is always instructive. There is no flight of fancy, no discovery of science, no speculation of philosophy, no plea for liberty, no prayer for light, but finds in the printing office its goal. The student at the case feeds his imagination, disciplines his mind, broadens his thought, and strengthens his intellect.

It used to be said of the legal profession that its disciples must know everything so as to be thoroughly equipped to try the various causes of their clients. Is there anything within the ken of mankind that a printer may not be called upon to put into cold type? One day he is in close communion with the philosopher, another he is walking hand in hand with the scientist, another he is in lock-step with some noted instructor, again he is in touch with the editor in his endeavor to influ-

ence public opinion, and still again he is making present history and future statesmen as he fills up the forms of the Congressional Record. He often takes thought in the rough and dresses it in shape for the market. He gets in sympathy with the writer, and, when allowed, weaves out a finer texture than the author dreamed. He is in touch with the questions of the hour, and is bred into familiarity with the history and standard writings of the past. He is schooled in judgment of human nature, and keeps in sympathy with the pulse of the people. Many an article would never be inflicted upon a long-suffering public if it were first submitted to the test of the man at the case. [Laughter.] Manuscript that falls flat upon his sensibilities is not likely to create a furor in literature, incite a reform, or change the destiny of a state. He knows what will awaken a popular chord, and his discriminating criticism sometimes reaches the editor's desk. His ridicule it is that kills the spring poet, that decimates the ranks of those anonymous scribes and pharisees who sign themselves "Pro bono publico," and that indirectly crowds out the communications of those writers who are continually sacrificing to some cause all interests not their own. [Laughter.] The printer, it may be, no longer composes editorials at the case, and does not set original gems of thought into type while you wait, but he is far from being shorn of his power. The editor and the proof-reader still lean upon him, and he shoots out from his ranks many a bright leader in the world's daily battle.

The printer's case has been, and still is, a stepping-stone to positions of honor and trust. From it have sprung statesmen, philosophers, writers, thinkers, scholars, patriots, and philanthropists. It has made itself felt in business affairs, in statecraft, and in diplomacy through its graduates. They have moved the world at home, and they have not been without their influence abroad. The Franklins, the Greeleys, and the Plumbs have abounded in the history of our country. Surpass them, if you can, in the product of your universities, and in the overflow of your colleges. Self-made men all of them, whose ambition was first fired at the case as they set in type the thoughts of others. What blows they dealt in controversy! What strength they had! What force of expression! What sturdy adherence to principle! Nothing appalled them. Their character was not the reflection of a tutor or of a college. They were possessed of individuality, original and striking. They carved their own way in life, and their own fortunes. They live in the present in acts and deeds which survive their mortality.

Whether or not this institution is to be open to the aged members of the editorial fraternity—the men whose ears are accustomed to the never-ceasing cry of "copy" from the composing room, and who wield the most potential force known to modern civilization—whether this class is to be welcomed here or excluded, they surely deserve a passing remark on this occasion. What a mighty power is the press of the present day—the great dailies—every issue of which is a veritable

microcosm, recording the current events of the civilized world. The newspaper is an engine of incalculable influence for good or for bad. If properly conducted it is a missionary, carrying enlightenment and hope to its readers; if improperly conducted it is an instrumentality for harm, the extent of which cannot well be over-estimated.

It is unfortunate that in this day of intense rivalry many influential newspapers seek to gain popularity and influence by questionable methods. The unauthorized interview, the cruel cartoon, the garbled statement, and the editorial ridicule have seriously damaged the reputations of many excellent men, while the unjust abuse, slanderous references, and absolute falsehoods, that are too often used as weapons to destroy individuals, are unworthy means that cannot be too severely condemned. As a well-known journalist has recently declared, "It is even confessed to be considered fair warfare to malign men by expressions in the public prints in a manner which, if practiced in private circles, would consign him who uttered them to lasting infamy and render him an individual that every decent person would shun."

Fortunately the journals that come under this scathing arraignment are few as compared to the whole, and it is to be regretted that the characterization is true in a single instance. For the most part the great newspapers of the country deal fairly with public questions, speak truthfully of individuals, and do their full part toward the upbuilding and strengthening of moral and material things. Constantly on the alert for news, watching their opportunity to secure an "exclusive," determined at all hazards to outdo their competitors, it is not to be wondered at that they sometimes print "fakes," or that even the time-honored secrets of the Senate executive sessions are in some way secured and published to the world. [Laughter.] Restless, enterprising, progressive, the great heart of American journalism beats with feverish activity, and its achievements place the American newspaper far in advance of those printed anywhere else on this earth. All hail, then, to the press! And in behalf of the printer we lay tribute of appreciation and admiration on the alter of the American newspaper, acknowledging it to be the greatest civilizer of the age and the grandest force of the century. [Applause.]

The Childs-Drexel Home for Aged Printers, beneath whose hospitable shade we are to-day, is one of the noblest of modern charities. If one more familiar than I with the inception and progress of this great enterprise had not been selected to speak on that theme, gladly would I do it myself. But that work is done, and it is left for me only to speak in a general way of those under whose guiding hand this memorial has been reared. First, let us pay a brief word of tribute to the union printers, who so liberally contributed of their comparatively small means to the fund that at length became sufficient for the purposes of the enterprise. The contribution of each was small, but the aggregate made it possible for the larger contributions to become available, and thus the erection of this Home became a possibil-

ity. Had not the printers come to the rescue, each one casting in his mite, very likely what is now an accomplished fact would be an unfilled purpose. To them, more than to any other instrumentality, belongs the honor in which we all share to-day.

But we have other and individual benefactors to be remembered in connection with this work. Mr. Anthony Joseph Drexel and Mr. George W. Childs, both of Philadelphia, originated the idea of this Home, and large contributions from them laid the foundation of its success. They are benefactors in the truest sense, their gifts being numerous and wide spread. It has been truthfully said of them:

"Something—a very little, however—is publicly known of the benevolence of Mr. Drexel and Mr. Childs. Its flow is continuous, and it is as broadly beneficent and practically helpful as it is steady. It consists not only of the giving of money, or of gifts of pecuniary value; it has the wider range which the common spirit of helpfulness that is so strong in the hearts of these men imparts to it. It is shown in the most studied consideration not only with everyone with whom they are associated in business or society, but for everyone who needs sympathy, or more material aid and comfort. In the world of business, in which the struggle for money is so great as often to harden the hearts of men against the misery of their fellows, the firms of Scrooge & Marley are many, and the warehouses of the Fezziwigs few. The business places of Mr. Drexel and Mr. Childs are of the latter sort. It will be remembered by anyone who has read Dickens's "Christmas Carol" how grateful the two poor apprentices were for what their employer, Fezziwig, had done to make their Christmas day joyous to them, and to all who were in his service. In the warehouses of Mr. Drexel and Mr. Childs it is Christmas always. It is their especial study, apparently, to make their employés happy, to make their service light, to make it a pleasure, and they are earnestly solicitous that the young lad who oils the wheels in the press room in the basement, or the messenger in the bank, shall always be as happy and as carefully looked after and considered as the managing editor or the bank president in his luxuriously appointed rooms. It is in this devotion to the welfare of their employés that the fine nobility of the characters of these two men of business is so conspicuously displayed.

Mr. Drexel comes of an honored family, and occupies a high place as a banker and philanthropist. His benefactions have been exceedingly liberal, and the Drexel Institute in Philadelphia, devoted to the work of instruction in arts, sciences, and practical handicrafts, and upon which he has already expended the enormous sum of $1,600,000, stands as an enduring monument to a name that will long be cherished in the minds and hearts of the American people. It is fortunate for this Home that his generous heart was touched, and his generous purse was opened. It becomes us to name his name with the highest distinction, and with the most grateful regard and respect. Amid all

the cares, riches, and honors by which he is surrounded in the distinguished position which his integrity and enterprise have worthily won for him, he never forgets those less fortunate than himself, and scatters his benefactions with a most liberal hand. Let him be assured that he is not forgotten on this occasion, and that those whom he has befriended will ever hold his name and character in fresh and grateful remembrance. We send him our greetings this day from these firm foundations of an institution which owes so much to his unstinted generosity, and our best wishes are wafted to him for continued prosperity and welfare.

In fit connection with Mr. Drexel—indeed the central figure of the group of our benefactors—we call the name of one of America's greatest and best men—Mr. George W. Childs—[great cheers and applause]—who is present with us at this moment, to receive our cordial and grateful acknowledgments, and our congratulations on his birthday anniversary. Long may he be spared to celebrate other birthdays, and to witness the result of his large and timely bounty. Of him it may be truly said:

> "Howe'er it be, it seems to me
> 'Tis only noble to be good;
> True hearts are more than coronets,
> And simple faith than Norman blood."

To trace the career of this man would be a labor of love did time permit it to be done. Not only in America, but in Europe as well, his name is a household word, and his bounty has reached far beyond the limits of his own country. This is not his first gift to Union printers, as the cemetery near Philadelphia, known as the "Printers' Cemetery, Woodlands," is one of his numerous benefactions, a beautiful spot, where now repose the remains of many of our fellow-craftsmen. Mr. Childs may well be called the printers' friend, and it was fitting that, a few years ago, *The Craftsman*, then the official paper of the International Typographical Union, should have editorially paid him the following glowing tribute:

"No man occupying the position of Mr. Childs has ever shown his good will, his regard, his genuine respect for us so nobly. When bad men would throw suspicion on our endeavors, when unfair journals would present us to the world as conspirators, whose association was a menace to the peace of the land, this nobleman of God's own making showed his good opinion of us, before the world, in his own practical and magnificent manner. Is it a wonder that we speak his name as one near and dear to us? Is it a wonder that on the anniversary of his birth we feel glad and happy and joyous that so good, so great a friend was given us? The career of Mr. Childs is marked by good deeds, by kindly acts so continuous that it really seems as if his thoughts were ever occupied, not in devising how to make money, but rather how to disburse

his princely income so as to make the larger number of deserving persons happy and comfortable."

Our own country, and especially his beloved city of Philadelphia, is dotted with evidences of the wise forethought and boundless liberality of Mr. Childs. Art, literature, and science have all felt the influence of his patronage. Schools, seminaries, and churches have been aided by his generous hand. And abroad, the magnificent fountain and clock tower erected in Shakespeare's native town to the memory of the greatest of all dramatists; the beautiful reredos erected at Winchester to the memory of Bishops Andrewes and Ken; the window of St. Margaret's, in honor of England's blind poet; the window in Westminster Abbey, to the Christian poets Herbert and Cowper; these and numerous other benefactions that might be named, tell the story of the breadth and extent of his charitable work beyond the borders of his own country. It is simply without parallel, and explains why this unassuming and genial man is the intimate friend of the greatest and best men and women both of Europe and America. He is everywhere beloved simply because he deserves the respect and love of all true men. The pen of another has truthfully recorded that his friends are legion. He has won the confidence and esteem of the leading statesmen of both continents, and has had many marks of respect tendered him by the rulers of many kingdoms. His hospitality is boundless, and his public banquets will go down in the history of the City of Brotherly Love as being the most distinguished and attended by the most eminent in all walks of life. He has entertained royalty. He has been deservedly popular with the most eminent writers, statesmen, and professional men of the age, and holds in the bonds of firm friendship the leading public men of two continents. His life has been marked by many instances of unexampled generosity. From his open hands have flowed a constant stream of benefactions, in all directions. His benevolence flows through channels of his own selection. People far and near, impressed with his incomparable liberality and goodness of heart, have delighted to do him honor, and throughout the world where the name of George W. Childs is known, there is felt a degree of active and warm personal regard which has probably never been before accorded to a private citizen.

But after all, he has contributed nothing that will be more enduring and beneficent than this Home. Surely no nobler monument to this man—no nobler monument to any man—could have been devised, nor one better calculated to secure for him an enviable and delightful remembrance in the hearts of those whom he has benefited long after the costliest cenotaphs or the most magnificent mausoleums have crumbled into dust. To you, members of the craft, it is an invaluable treasure, and the name of your illustrious friend will henceforth be inscribed upon your rolls and upon your hearts as one of the greatest and most honored benefactors of the age.

Not as columns or arches of marble, granite, or bronze are reared to

perpetuate the name and fame of statesmen or warriors is this memorial erected. This will tend to perpetuate the memory of the good men who were instrumental in the inception and fulfillment of the noble purpose, but better than all else it will bless and comfort its inmates, and shed light and fragrance upon multitudes of brave and true men as they go down the declivity of life to the great beyond. Not for fame, but "for sweet charity's sake," was this Home built. Not for the honor or glory of the men whose names are indissolubly connected with the enterprise, but for the comfort and happiness of their fellows. The men whose names are on every lip because of their great generosity to this noble charity have won honor and distinction in other fields, but surely no triumph that has come to them in the great arena of business or professional pursuits can thrill the heart or delight the soul as the contemplation of deeds like this. For,—

"Though we climb Fame's proudest height;
Though we sit on hills afar
Where the thrones of triumph are;
Though all deepest mysteries be open to our sight,
If we win not by that power
For the world a richer dower,
If this great humanity share not in our gain,
We have lived our life in vain.

"Though our lot be calm and bright,
Though upon our brows we wear
Youth, and grace, and beauty rare,
And the hours fly swiftly, singing in their flight,
If we let no glory down
Any darkened life to crown,
If our grace and gladness have no ministry for pain,
We have lived our life in vain."

This Home marks a forward step in the advancing column of benevolent thought and philanthropic action. It is, too, a recognition of the principle of Trade Unionism, by which the toiler in the workshop protects his interests against the aggressions of capital and power. There would be no need of labor organizations were all employers animated by the spirit so long displayed by George W. Childs, who never forgets the rights of the employed, and who never trenches upon the privileges of the great army of toilers. [Great applause.] But all are not like him, and thus organization becomes both a duty and a necessity. The printers find their safety and strength in the International Typographical Union, and this Home, aside from its purely benevolent features, is a recognition of the merits and purposes of the organization that has done so much to make this enterprise a success.

But above all and beyond all, this Home is a tribute to the worth of the craft and to the benevolent development of the age. Here will be gathered many of the bright minds of the "art preservative." Here,

after the active possibilities of life have departed, will come veterans from the ranks, to recount around the hospitable fireside, and amid the glow and beauty of this most favored spot, the experiences of the case, the printing-press, the pen, the scissors, and the paste-pot. Here will wit flow and philosophy reign supreme. Here will the stories of the printing office be repeated, and the achievements of the great men of the profession be discussed. Here will grave questions of statecraft find intelligent disputants. Here will the burden of misfortune be lifted, sorrows mitigated, suffering ameliorated, and the sunset days of many brave and good men be rendered serene and happy. Surely no words of mine can adequately paint the importance of this occasion, or portray the value of this great gift. Here it stands, a monument to those who erected it, and a living proof of the good that is in the human heart. To-day we dedicate this structure—dedicate it to the principles of fraternity and good fellowship—dedicate it to the great work of benevolence and charity—dedicate it to the high and heaven-born doctrine of the golden rule, and the blessed teachings of Him who suffered and died for his fellow-men.

And as now our work is done, as we separate to our homes and to the individual duties and cares of life, the only added thought we can formulate into words is the earnest hope and belief that those who partake of the hospitalities and comforts of this charming Home may never forget that they can only act well their part by deeds of truest manhood and noblest endeavor, by lives that will be the best possible argument that this great benevolence was wisely conceived and carried to its consummation by men who know the virtues of the craft and who have a broad and correct comprehension of the characters and attributes of those whose life-work it is to put in cold type the living thoughts and aspirations of humanity. May heaven's choicest blessings rest upon its founders, its officers, and its inmates, and may this Home, so auspiciously opened to-day, take deservedly high rank among the eleemosynary institutions of this great nation. [Applause.]

THE STRIKE AND ITS LESSONS.

The following sermon was delivered in the Free Baptist church, Farmington, N. H., Jan. 13, 1895, by the pastor, the Rev. J. S. Harrington. The occasion which suggested the sermon was the strike in the shoe-shop of Wallace, Elliott & Co., in which great interest was taken by the people of the town, aside from those directly interested. There was a large attendance present, and in addition to the usual congregation two members of the firm from New York, many of the operatives, business men, and other citizens of the place were interested listeners. The following day terms of agreement were reached between the firm and the employés, and a day later the help returned to work in a body. The salutary effect of the sermon is said to have been largely instrumental in effecting a prompt and satisfactory settlement of the strike, and the discourse, kindly furnished by the pastor, is herewith appended:

TEXT.

"THEY SHALL BEAT THEIR SWORDS INTO PLOWSHARES, AND THEIR SPEARS INTO PRUNING HOOKS."—*Isaiah 2:4.*

These words were uttered seven and one half centuries before the birth of Christ. They speak of results to be obtained through the diffusion of light and the acceptance of a certain principle of equity. To so transform the individual, the nation, the race, as to secure the conversion of the instruments of defence and destruction into implements of peace and utility would be an end most desirable. Men profess not to be pugnacious. There may be trouble, but the other party is the aggressor. Offended innocence assumes the martyr's role and claims the sympathy of its more fortunate fellows. The old Eden story is repeated o'er and o'er. We men, like Adam, point to some fair offender only to find that the guilt we attempted to disown has been transferred to some real or imaginary demon. Well, the fact is, somebody interferes with the rights of some other party, and he who stands to maintain his rights must needs be wise and conscientious to an extent not now common amongst men, or should the contest grow heated, he, too, will become an offender. Few persons enter bitter contests and come out unstained. In our village we stand face to face to-day with a question that must be heard from again and again

throughout the length and breadth of our land. The relation of labor and capital is one of our unsolved problems. In some respects we, in America, are gradually approaching a condition similar to that now existing in certain European countries. There is not only an immense accumulation of wealth, but there is also an alarming combination of wealth for wealth-producing purposes. Every important industry of the country has passed from the hands of the small producer into the control of one or more great corporations. In the hands of far-seeing and conscientious men these industries are safe, as are also the interests of the wage-earner and consumer. But experience has taught us that great wealth is not always a certificate of strict integrity. Gaining control of industries or products, there is a strong temptation to secure material and labor at the minimum, and to oblige the purchaser to pay the maximum. Many of the great combines of the country furnish ample illustration of the soullessness of a corporation in its greed for gain. The Standard Oil Company has made its power felt over nearly the whole civilized world while amassing its untold millions. The Rubber Trust has steadily reduced the value of its products and at the same time increased its prices until men who a few years ago were poor employés are to-day dictators who count their wealth by many millions. On the other hand, the wage-earners have little to look forward to other than the maintaining of their families and the possible possession late in life of a small home.

These suggestions are offered that we may the better realize the magnitude of the problem of which the question of this hour is a small factor.

With a desire to promote the right and secure harmony I have yielded to personal solicitations and shall speak today with special reference to the labor trouble in this place. It is proper that we begin by considering some of the factors entering into the question. *First*, there is the invested funds. To all parties concerned the building, equipping, and maintaining of such a factory is a matter of no small importance. These funds represent brain work as well as ordinary manual labor; represent, as a product, man in the prosecution of legitimate vocations. No fair minded adjustor can fail to give full value to every dollar involved in this business. It is, and must be, a consideration in reaching a just and proper issue. *Second*, there is the business ability of the managing firm. In the commercial world, as elsewhere, there is a premium on mental acumen. The men who look first and deepest into things have a right to certain recognitions not to be accorded to those more obtuse. The successful management, in these times of sharp competition, of any industry such as is involved in this trouble, is not within the scope of small business ability. To buy, manufacture and sell, maintain and manipulate all of the details of such an industry is to contribute valuable time and ability, the worth of which demands just recognition. *Third*, there is the time of the employés. From morn till night they ply their hands.

Their service is a factor indispensable. If the firm and business is of importance to them, they are of equal importance to the firm. The one must exist if the other succeed. These employés are not toilers in the sense that they earn their livelihood and that of their families, and that alone; they are a part of the great wealth-producing population of the land. They sustain to the firm much the same relation that the rank and file of the army does to the officer in command, hence are to have a place of first importance in seeking an adjustment. *Fourth*, there is the skill in construction. The production of a serviceable and marketable article is not to be obtained without both care and skill. This skill is due to both natural and acquired ability. This ability is of special value, and gives special value to all that is associated with it in industry. It must therefore find recognition as adjustment is sought and distribution is made.

Having examined the factors involved, let us look at the results that ought to be obtained. *First*, it is consistent and businesslike to expect that the invested funds should yield a fair per cent. Such a result ought to be looked for not only by the investor, but by the employé and the consumer. Commercial methods ought to be such as to enable money to be a money earner up to a certain point of profit. *Second*, there should be a fair compensation for management. Business ability of a high order merits compensation above that required to care for a small concern. *Third*, the time of the employed is to be taken into the accouut. The wage earner is a factor of great importance. He represents much both for himself and for the firm. He touches in a vital way the monetary interests of the nation. He ought not only to subsist, but he ought to find a compensation that will place him beyond the reach of want, after years of toil and economy. *Fourth*, there must be the grading of the receipts of the employed according to skill of each and the value of the task performed as related to market prices.

Let us next turn our attention to the consideration of the *cause* of the existing differences. In doing so let me speak in the highest terms of the courtesy shown by all parties concerned in this contest. It has been my privilege to mingle freely with the employés and to apparently know all of their side of the question, except such matters as came up in the private meetings of the unions.

There has been a degree of open heartedness and cordiality that has been most gratifying. On the other hand the long private interview, that was granted most cordially by the firm, was characterized by the same spirit of frank and free communication. No pains has been spared in seeking to know both the cause and the animus of the question. To one with fair insight into human nature, any disposition to unfairness in a contest, so heated as this, is easily detected. It will not, I trust, be deemed presumptuous to say that the whole matter seems clear to my mind. That it would not be difficult to indicate those who desire to secure their ends, even at the expense of justice

to others. On the one hand the *firm* claim that the receipts have been unsatisfactory—that they are not doing a paying business—hence they must cut the pay of the help or close up the shop. They further state that the prices proposed are equal to prices elsewhere for the same class of work. The help on the other hand state that the proposed prices are less than they can live on and pay their way—that the cut down is such that those who hitherto have made fair pay cannot possibly sustain themselves. They also state that the proposed prices are much less than is paid elsewhere for similar work and under practically the same circumstances. Each party maintains the position taken firmly, with an evident purpose of bringing the other to terms. It is quite certain that both parties cannot be right in position and statement.

The next phase of this question we desire to consider is the parties themselves and the spirit they manifest. The help are American. This is decidedly an American community. It is greatly to be desired that it remain so. It would be regarded a great calamity if any one of our manufactories should decide to employ, to any great extent, cheap foreign help. We are free from any taint of communism. The spirit of the anarchist finds no dwelling place amongst us. During these trying weeks the manly and womanly bearing of those concerned has been most gratifying. They thereby have commended themselves to the citizens of the place, and secured words of commendation from the firm. They are an intelligent class of operatives. The firm, who own several factories, speak in unqualified terms of the appearance and intelligence of our operatives as compared with those of other places. From years of association with them I can justly say they, as a whole, are upright. Many of them are members of my own church. Our songs of praise and words of prayer have united in the service of our common Master. They are respected and loved. The firm, before whom I have the honor to speak, is composed of men of marked intelligence. Their business ventures have been eminently successful. They have steadily increased in wealth and influence, until they are an important factor in the shoe industry of the country. With an ability to do well, both for themselves and for this community, they have given me the fullest assurance that they desire their help to have a fair remuneration for all services rendered, and that they will give the people of this place the preference in everything pertaining to their factory here.

Both parties in this contest are the losers. Both seem anxious to reach an adjustment. Neither can afford to have things continue as they now are. Shall we not now consider the question of settlement? One of the very first steps to be recommended is care in statement. It is much more than amusing to go about and listen to stories, credited by one side as coming from the other. Ungracious remarks have, without doubt, been made. The trouble is there has been too much talking when silence was preferable. Gossip and talebearing has engen-

dered the spirit of strife and distrust. Think much, and as you please, but exercise great care in the use of that "unruly member." Much that has been reported to have been said was never the utterance of the parties to whom it is credited. Street gossip, like boast and threat, ought to be ignored and scorned at by fair minded persons.

The second step in adjustment is a willingness to make concessions. There must be a middle ground on which both parties ought to agree to meet. Neither party ought to say that the other *must* come to their terms. There are also two sides to this question. Look matters over calmly and dispassionately. In so far as you may be able, remove the objectionable from each side, and you will find it much easier to bring that which remains together. It may seem strange, to you, that we suggest as our third thought in adjustment, that there be a willingness to do right. Have you ever noticed how hard it was to utterly divest one's self of selfishness? to let the lines of justice fall where they ought? It is no easy matter to surrender our wishes, and what might seem to be for our interest, for the sake of benefiting another, especially if that party may have antagonized us to some extent. And yet a moment's thought will convince any that no person can afford to be less than right. A wrong done another is an injury done ourselves. A single dollar secured in any dishonest way, by any party, cannot fail to produce moral self-disparagement, and secure the frown of an allwise and just Ruler. In that day when, not only the acts of men are to be made manifest, but their motives are to become transparent, may it appear that each has sought to know and do the right.

There remains but one other suggestion to be made. After days of discussion and bantering there does not seem to be any near approach to adjustment. Indeed there seems to be a much deeper state of feeling and a stronger purpose to win on the part of both parties. In a heated state of mind there is not likely to be the exercise of the usual candor and good judgment; for these reasons it is suggested that this whole matter be submitted to arbitration. Commit this question to disinterested and competent men. Let the views and interests of each party be presented fully and clearly. When the matter has been examined into carefully and the conclusion reached, let it be accepted as just and right. As things now are this seems to be the only immediate way of solution for this vexing question. Pending the report of the committee of arbitration the help might return to their work, and both help and firm be thereby relieved from inconvenience and embarassment.

In behalf of the citizens of the place, in behalf of all who are personally interested and involved in this contest, in behalf of right and justice, for the sake of the homes, the business, and the morals of all, I ask that these weapons of defence and destruction be converted into implements of peace and utility. Beat ye your "swords into plowshares and your spears into pruning hooks," that peace, prosperity, and the divine blessing may attend you.

LEGISLATION FOR THE MASSES.

BY C. FRED BLANCHARD, CONCORD, N. H.

The laboring classes have asked law-making bodies to pass laws to shorten the hours of toil; to require employers to compensate families of workmen killed by machinery when accidents are not due to their own carelessness; to protect union labels; to incorporate trade unions, and to do many other things which should be done, and which would be if legislators listened more to the voice of justice and less to that of the money power.

The two great needs of the masses are shorter hours of labor and better pay. Men, women, and children are over-worked and under-paid. This means inferior education, encouragement of drinking and other vices which spring from a reckless, starved, and neglected mind. Legislation is capable of remedying this. We want an eight-hour law, yet such a law would not be effective without a radical change in the relations of employer and employed. In most industries wages should not suffer reduction in order to shorten the working-day, for they are now so low that, did we have an eight-hour day, many would gladly work over-time in order to increase their small incomes. Then, again, with a vast number of unemployed ready to fill their places, those holding situations would generally yield to an invitation from their employers to work nine or ten hours regardless of the law, in order to save their situations; for who would care to insist upon the law's enforcement but the worker? and how could he afford to make complaint against his employer and, as a result, lose his job?

Now, it would seem that an eight-hour law could not be enforced in the case of the great corporations, because they are more powerful than the poor people who depend upon them for employment. There lies the root of the evil. A corporation or combination that is more powerful than the citizens of the state is a most dangerous element in society. A law which gives privileges to a man or group of men that enables them to become dictators (as to hours, wages, and conditions of labor, and consequently in all that life means) to large numbers of citizens dependent upon a given industry—such a law is an evil one. The weak must lose in a contest with the strong. The state has, in the special-privileged corporation, raised up a monster which knows "no sentiment in business,"—no consideration for human needs and human rights. It practices the motto of the slave-driver, if it does not openly avow it—"use up and buy more."

It is useless to depend upon the good will of the employing class to make conditions better for labor. With the rapid concentration of wealth in a few hands, with the greater power given them as a result

of such wealth, the more exacting grows the attitude of the task-master, and the more submissive becomes the unfortunate workman dependent upon him for employment.

The logical remedy is this: When an industry has become thus oppressive and dangerous, the people, through their state or national organization called government, must own and operate it. Thus absorbed by the people, a powerful agency for corrupting legislatures and courts, newspapers and public officials, would be turned into a coöperative enterprise, furnishing steady employment with good wages and short hours. Wherever people are employed under these conditions, happier homes, better education for children of workers, and more leisure for rest and indulgence in refined tastes results. More than this, with better pay consumption is increased and more labor is employed, and the army of enforced loafers is diminished.

Some of the industries that should be at once absorbed by the people are railroads, telegraphs, telephones, mines, express and street car lines, and banks. Many will say at once "Oh! but that is socialism!" True enough, it is; but let the objector inquire into what socialism is, and he will find that we now have a mixed order of society, viz.: socialism and piracy. Which is the better element? Private business, which is called "free competition," ends in combination. Combination dictates wages, hours of labor, and, by limiting and controlling the output, names the price which the consumer must pay for his goods or go without.

Socialism is illustrated in the school system, which every loyal American admires; the postal system, which nobody wants to see reverted to private hands; the fire service, which is far more efficient than it could be as a private enterprise; the army and navy, courts, yes, even legislatures. In short, socialism is government; "free competition" is anarchy. The former tends to harmonize all interests, the latter to create antagonistic classes—the rich and powerful, the poor and weak. Free competition stimulates love of money, dwarfs manhood, puts the false in place of the true, and in its wake follows every ill of life. Coöperation, or socialism, makes men self-respecting and useful citizens, and induces ambition for excellence. Under a more complete socialism than we have to-day there will be no strikes nor lockouts, and no suffering poor; no ignorant men and women, for education will be not only free, but readily attainable. When this principle, which has long been a part, and the best part, of our social system, is understood, all fair-minded people will strive to aid in its development.

Direct legislation is also an important matter for consideration. It includes the initiative, by which the people have the right to propose legislation for enactment, and the referendum, which requires that all enactments shall be referred to the people for acceptance or rejection, precisely as constitutional amendments now are. Under a law of this kind, for example, the people in New Hampshire interested in the

matter would ask the legislature to submit a fifty-eight or forty-eight hour bill to the voters of the state. If the voters said yes, it would become a law; if no, it would not. The lobby might then go home and engage in useful and honorable occupations, for it could not thwart the will of the people. The legislature could save expense to the state by not wasting time gerrymandering wards and districts to prevent a free expression of the will of the voters; because the making of laws would not devolve upon the people's representatives, but upon the voters themselves. Much of the corruption of politics would be done away with; and the masses, being real law makers, would become interested in the science of government. This method of legislation adopted, all reforms would be easily made.

FOURTEENTH ANNUAL REPORT

RELATING TO THE

REGISTRATION AND RETURN

OF

BIRTHS, MARRIAGES, DIVORCES, AND DEATHS

IN NEW HAMPSHIRE

FOR THE YEAR 1893.

VOLUME XI. . . NEW SERIES.

CONCORD:
EDWARD N. PEARSON, PUBLIC PRINTER.
1894.

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THE STATE OF NEW HAMPSHIRE.

OFFICE OF THE REGISTRAR OF VITAL STATISTICS,

CONCORD, November 1, 1894.

To His Excellency the Governor and the Honorable Council:

I have the honor to submit herewith, in accordance with the laws of the state of New Hampshire, the fourteenth annual report relating to the registration of births, marriages, divorces, and deaths in this state for the year ending December 31, 1893.

The number of births reported in this state for the year 1893 was 8,348, or 602 more than was reported in 1892; the number of marriages was 4,090, or 16 more than was returned in 1892; the number of deaths was 7,663, or 325 less than in 1892.

The total population of the state, according to the census of 1890, is 376,530, and the proportion of births, marriages, and deaths to each one thousand of the population is as follows:

Birth-rate, 22.17; marriage-rate, 10.86 (couples); divorce-rate, 1.01; death-rate, 20.35.

The tables have been arranged substantially as in the last registration report.

Reference should be had to the index at the end of this volume for any subject included in this report.

Respectfully submitted,

Irving A. Watson

Registrar of Vital Statistics.

TABLE No. I.

Showing Births for 1880, 1881, 1882, 1883, 1884, 1885, 1886, 1887, 1888, 1889, 1890, 1891, 1892, *and* 1893.

Counties.	Population in 1880.	Population in 1890.	Births.													
			1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893
Rockingham	49,064	49,650	733	675	749	692	637	640	757	727	750	752	773	764	797	895
Strafford	35,558	38,442	322	423	625	698	640	621	662	701	725	705	784	814	808	861
Belknap	17,948	20,321	215	227	273	261	242	256	263	296	307	328	322	370	395	353
Carroll	18,224	18,124	153	198	274	286	275	245	264	249	236	260	261	279	309	312
Merrimack	46,300	49,435	628	750	809	723	739	734	818	773	852	921	938	1,032	988	1,069
Hillsborough	75,634	93,247	840	879	1,617	1,675	1,843	1,952	2,148	2,313	1,798	1,923	1,963	2,144	2,286	2,489
Cheshire	28,734	29,579	255	348	445	496	554	511	514	525	553	546	543	602	611	665
Sullivan	18,161	17,304	245	236	265	269	268	267	230	269	276	287	306	309	339	312
Grafton	38,788	37,217	584	593	657	647	643	631	623	623	599	695	636	658	618	720
Coös	18,580	23,211	274	286	410	403	406	462	378	434	347	495	420	538	595	672
Total	346,991	376,530	4,249	4,615	6,124	6,150	6,247	6,319	6,657	6,910	6,443	6,912	6,946	7,510	7,746	8,348

TABLE No. 1.—*Continued.*

Showing Marriages for 1880, 1881, 1882, 1883, 1884, 1885, 1886, 1887, 1888, 1889, 1890, 1891, 1892, *and* 1893.

Counties.	Population in 1880.	Population in 1890.	Marriages.													
			1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893
Rockingham	49,064	49,650	310	382	419	399	419	447	440	457	420	484	458	507	502	546
Strafford	35,558	38,442	255	332	428	425	415	388	418	420	416	377	457	466	466	467
Belknap	17,948	20,321	108	177	166	198	147	150	183	213	183	186	178	200	208	194
Carroll	18,224	18,124	136	149	159	175	171	182	177	149	163	176	155	200	190	205
Merrimack	46,300	49,435	330	353	364	432	344	361	345	421	405	423	473	430	463	478
Hillsborough	75,634	93,247	752	674	1,025	949	886	815	876	915	879	1,013	939	1,043	1,252	1,138
Cheshire	28,734	29,579	195	206	232	262	238	233	240	255	221	250	237	289	269	255
Sullivan	18,161	17,304	134	151	149	167	138	109	140	123	146	154	172	175	152	151
Grafton	38,788	37,217	274	270	319	339	332	327	318	328	322	343	314	338	332	356
Coös	18,580	23,211	135	146	172	149	202	168	187	214	224	215	238	256	240	300
Total	346,991	376,530	2,629	2,830	3,433	3,495	3,292	3,180	3,324	3,495	3,379	3,621	3,621	3,904	4,074	4,090

TABLE No. 1.—*Continued.*

Showing Deaths for 1880, 1881, 1882, 1883, 1884, 1885, 1886, 1887, 1888, 1889, 1890, 1891, 1892, *and* 1893.

Counties.	Population in 1880.	Population in 1890.	Deaths.													
			1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893
Rockingham	49,064	49,650	627	717	732	699	873	911	963	876	896	875	1,065	991	1,026	1,033
Strafford	35,558	38,442	184	329	372	494	627	619	609	673	688	691	801	809	864	742
Belknap	17,948	20,321	147	153	219	262	285	289	362	369	392	389	374	392	440	369
Carroll	18,224	18,124	107	189	219	253	333	269	303	294	328	298	303	341	342	305
Merrimack	46,300	49,435	595	695	726	762	736	796	833	835	920	891	983	951	1,064	1,063
Hillsborough	75,634	93,247	1,203	1,396	1,390	1,551	1,655	1,701	1,681	1,697	1,846	1,740	1,973	1,957	2,092	2,103
Cheshire	28,734	29,579	240	271	405	418	497	494	475	482	488	525	557	482	608	595
Sullivan	18,161	17,304	190	261	261	254	273	284	328	283	327	314	332	280	382	362
Grafton	38,788	37,217	429	482	487	547	652	611	616	602	655	625	651	648	749	696
Coös	18,580	23,211	107	157	190	181	263	227	256	368	314	348	329	459	421	395
Total	346,991	376,530	3,829	4,650	5,001	5,421	6,194	6,201	6,426	6,479	6,854	6,696	7,368	7,310	7,988	7,663

TABLE No. II.

Population of 1890; *Births, Marriages, and Deaths, with percentage of each to one thousand of the population, for the year ending December* 31, 1893.

COUNTIES.	Population in 1890.	Births.	Rate per 1,000 of population.	Marriages.	Rate per 1,000 of population.	Deaths.	Rate per 1,000 of population.
Rockingham	49,650	895	18.03	546	10.99	1,033	20.80
Strafford	38,442	861	22.39	467	12.14	742	19.30
Belknap	20,321	353	17.37	194	9.54	369	18.16
Carroll	18,124	312	17.21	205	11.31	305	16.83
Merrimack	49,435	1,069	21.62	478	9.66	1,063	21.50
Hillsborough	93,247	2,489	26.69	1,138	12.20	2,103	22.55
Cheshire	29,579	665	22.47	255	8.62	595	20.11
Sullivan	17,304	312	18.03	151	8.72	362	20.92
Grafton	37,217	720	19.34	356	9.56	696	18.70
Coös	23,211	672	28.95	300	12.92	395	17.02
Total	376,530	8,348	22.17	4,090	10.86	7,663	20.35

TABLE

Births, Marriages, and Deaths for

ROCKINGHAM

TOWNS.	Population.	Births.									
		Sex.					Parentage.				
		Male.	Female.	Not stated.	Total.	Rate per 1,000.	Both American.	Both foreign.	American mother and foreign father.	American father and foreign mother.	Not stated.
Atkinson	483	5	5	..	10	20.70	9	....	1	....	..
Auburn	631	3	5	..	8	12.68	6	....	....	2	..
Brentwood	967	7	4	..	11	11.37	6	4	1	....	..
Candia	1,108	16	3	..	19	17.15	14	2	....	2	1
Chester	958	11	2	..	13	13.42	12	....	....	1	..
Danville	666	9	2	..	11	16.52	8	2	....	1	..
Deerfield	1,220	8	10	..	18	14.75	13	2	....	1	2
Derry	2,604	37	18	..	55	21.12	40	6	1	3	5
East Kingston	461	4	3	..	7	15.18	3	2	....	1	1
Epping	1,721	20	27	..	47	27.31	27	10	6	2	2
Exeter	4,284	52	47	1	100	23.11	44	31	12	7	6
Fremont	726	10	13	2	25	34.44	11	10	2	1	1
Greenland	647	5	7	..	12	18.55	10	1	1	....	..
Hampstead	860	5	8	1	14	16.28	12	....	1	1	..
Hampton	1,330	5	6	..	11	8.25	8	....	....	3	..
Hampton Falls	622	3	1	..	4	6.43	2	2	....	....	..
Kensington	547	3	3	..	6	10.96	6	....	....	....	..
Kingston	1,120	7	8	..	15	13.39	14	....	....	....	1
Londonderry	1,220	13	10	..	23	18.85	16	....	4	3	..
Newcastle	488	6	2	..	8	16.39	7	....	....	1	..
Newington	401	1	2	..	3	7.48	2	....	....	1	..
Newmarket	2,742	37	41	..	78	28.52	19	48	4	3	4
Newton	1,064	5	10	..	15	14.09	9	3	....	2	1
North Hampton	804	5	2	..	7	8.71	7	....	....	....	..
Northwood	1,478	11	22	..	33	22.33	32	....	....	....	1
Nottingham	988	8	10	..	18	18.22	15	....	1	2	..
Plaistow	1,085	3	8	..	11	10.14	4	5	2	....	..
Portsmouth	9,827	94	81	..	175	17.81	97	44	12	20	2
Raymond	1,131	14	9	..	23	20.34	20	....	1	2	..
Rye	978	8	5	..	13	13.29	9	3	....	1	..
Salem	1,805	8	13	..	21	11.63	15	2	3	1	..
Sandown	475	2	4	..	6	12.63	3	....	1	2	..
Seabrook	1,672	20	27	2	49	29.31	44	1	1	1	2
South Hampton	370	7	2	..	9	24.32	7	1	1	....	..
So. Newmarket	855	....	2	..	2	2.34	1	....	1	....	..
Stratham	680	3	3	..	6	8.97	5	....	1	....	..
Windham	632	5	4	..	9	14.24	5	....	2	2	..
Total	49,650	460	429	6	895	18.03	562	179	59	66	29

No. III.

the year ending December 31, 1893.

COUNTY.

Marriages.						Deaths.							
						Sex.				Nativity.			
Both American.	Both foreign.	Husband American.	Wife American.	Not stated.	Total.	Male.	Female.	Not stated.	Total	American.	Foreign.	Not stated.	Death-rate per 1,000.
6	1	....	1	....	8	3	2	....	5	5	....	....	20.70
4	....	....	....	....	4	9	6	....	15	11	3	1	23.77
2	....	1	....	....	3	28	17	....	*45	15	2	28	46.64
3	....	1	....	....	4	13	10	....	23	19	1	3	20.76
7	....	2	4	....	13	7	8	....	15	15	....	....	15.71
3	....	....	....	....	3	6	7	....	13	11	2	....	19.52
6	....	....	....	....	6	9	13	2	24	14	2	8	19.67
16	2	1	2	....	21	29	26	1	56	43	5	8	21.52
4	....	2	....	....	6	9	2	....	11	9	1	1	23.86
8	....	....	4	....	12	26	20	....	46	43	1	2	26.72
23	7	10	4	3	47	47	52	....	99	73	12	14	23.11
4	1	1	....	....	6	2	6	....	8	7	....	1	11.02
6	....	....	....	....	6	10	6	....	16	14	....	2	24.71
6	....	1	....	....	7	3	8	....	11	9	1	1	12.79
6	....	1	....	....	7	6	5	....	11	10	....	1	8.27
7	....	....	....	....	7	3	3	....	6	4	1	1	9.64
6	....	....	....	....	6	3	4	....	7	4	....	3	12.79
11	....	....	1	....	12	12	10	....	22	22	....	....	19.64
9	1	....	1	....	11	17	15	....	32	26	1	5	26.22
1	....	1	....	....	2	2	6	....	8	8	....	....	16.39
1	....	....	1	....	2	4	2	....	6	5	1	....	14.96
8	12	6	2	....	28	30	29	....	59	43	15	1	21.52
11	2	2	....	....	15	8	9	....	17	13	2	2	15.98
2	....	2	....	1	5	5	4	....	9	6	2	1	11.19
12	....	3	....	....	15	12	15	....	27	22	5	....	18.27
5	....	....	....	....	5	8	10	....	18	15	....	3	18.22
7	3	1	....	....	11	10	12	....	22	16	1	5	20.28
127	24	24	19	4	198	130	107	1	238	185	37	16	24.22
11	....	2	....	....	13	13	12	....	25	25	....	....	22.10
6	....	1	1	....	8	6	11	....	17	17	....	....	17.38
15	....	....	....	....	15	17	19	....	36	29	3	4	19.93
....	....	....	....	....	....	5	6	....	11	8	1	2	23.15
20	1	1	....	....	22	15	18	....	33	32	....	1	19.74
6	....	....	....	....	6	5	1	....	6	5	....	1	16.22
3	1	1	....	....	5	6	9	....	15	15	....	....	17.54
2	....	....	....	....	2	4	3	....	7	7	....	....	10.29
5	....	....	....	....	5	4	10	....	14	11	1	2	22.15
379	55	64	40	8	546	526	503	4	1,033	816	100	117	20.80

* Died at the county farm, 32.

TABLE No. III.

STRAFFORD

TOWNS.	Population in 1890.	Births.									
		Sex.					Parentage.				
		Male.	Female.	Not stated.	Total.	Rate per 1,000.	Both American.	Both foreign.	American mother and foreign father.	American father and foreign mother.	Not stated.
Barrington	1,408	10	10	..	20	14.20	16	3	1	....	..
Dover	12,790	148	152	1	301	23.53	121	114	29	24	13
Durham	871	1	3	..	4	4.59	4	....	....	....	..
Farmington	3,064	18	11	..	29	9.46	23	3	....	3	..
Lee	606	4	2	..	6	9.90	3	1	1	1	..
Madbury	367	....	2	..	2	5.45	2	....	....	....	..
Middleton	207	3	2	..	5	24.15	4	....	....	1	..
Milton	1,640	19	13	1	33	20.12	29	3	....	1	..
New Durham	579	3	5	..	8	13.82	6	2	....	....	..
Rochester	7,396	96	76	1	172	23.26	89	58	11	15	..
Rollinsford	2,003	30	29	1	60	29.96	13	39	4	3	1
Somersworth	6,207	96	111	1	208	33.51	27	162	6	10	3
Strafford	1,304	6	6	..	12	9.20	9	2	....	....	1
Total	38,442	434	422	5	861	22.39	346	387	52	58	18

—*Continued.*

COUNTY.

Marriages.						Deaths.							
						Sex.				Nativity.			
Both American.	Both foreign.	Husband American.	Wife American.	Not stated.	Total.	Male.	Female.	Not stated.	Total.	American.	Foreign.	Not stated.	Death-rate per 1,000.
9	....	1	1	....	11	16	7	....	23	23	....	....	16.33
110	32	17	16	2	177	145	185	....	330	209	67	54	25.80
4	1	1	....	....	6	2	8	....	10	9	....	1	11.41
27	....	....	....	....	27	20	20	....	40	34	2	4	13.05
4	....	....	....	....	4	7	5	....	12	12	....	....	19.80
....	....	....	....	....	.....	2	2	....	4	4	....	....	10.90
1	....	....	....	....	1	2	1	....	3	3	....	....	14.49
9	1	1	....	....	11	14	9	....	23	20	....	3	14.02
4	....	1	....	....	5	4	5	....	9	4	1	4	15.54
69	19	7	5	....	100	59	54	....	113	88	15	10	15.27
14	5	3	2	....	24	22	12	....	34	23	8	3	16.97
32	10	12	7	31	92	50	75	....	*125	81	35	9	20.14
9	....	....	....	....	9	8	7	1	16	15	....	1	12.27
292	68	43	31	33	467	351	390	1	742	525	128	89	19.30

*Died at the county farm, 41.

TABLE No. III.

BELKNAP

TOWNS.	Population in 1890.	Births.									
		Sex.					Parentage.				
		Male.	Female.	Not stated.	Total.	Rate per 1,000.	Both American.	Both foreign.	American mother and foreign father.	American father and foreign mother.	Not stated.
Alton	1,372	8	10	..	18	13.12	16	1	....	1	..
Barnstead	1,264	13	4	1	18	14.24	16	1	....	....	1
Belmont	1,142	6	9	..	15	13.13	9	3	...	3	..
Centre Harbor	479	4	2	..	6	12.53	5	....	1	....	..
Gilford	3,585	5	6	..	11	3.06	9	....	....	....	2
Gilmanton	1,211	4	4	1	9	7.43	8	....	....	....	1
Laconia	6,143	120	88	6	214	34.83	73	96	12	19	14
Meredith	1,642	11	10	..	21	12.78	17	....	....	2	2
New Hampton	935	3	6	..	9	9.62	7	1	1	....	..
Sanbornton	1,027	7	6	..	13	12.66	11	....	1	....	1
Tilton	1,521	8	10	1	19	12.49	7	2	1	3	6
Total	20,321	189	155	9	353	17.37	178	104	16	28	27

—*Continued.*

COUNTY.

Marriages.						Deaths.							
						Sex.				Nativity.			
Both American.	Both foreign.	Husband American.	Wife American.	Not stated.	Total.	Male.	Female.	Not stated.	Total.	American.	Foreign.	Not stated.	Death-rate per 1,000.
16	....	....	1	....	17	13	13	....	26	26	....	....	18.95
5	....	2	....	....	7	9	9	....	18	14	2	2	14.24
7	....	....	1	....	8	11	9	....	20	17	2	1	17.51
5	....	....	....	....	5	4	2	....	6	4	1	1	12.53
3	....	....	....	....	3	4	2	....	6	5	....	1	1.67
6	....	....	....	....	6	15	11	....	26	18	....	8	21.47
56	19	15	13	3	106	84	90	....	174	123	30	21	28.32
16	....	....	....	....	16	9	15	....	24	17	....	7	14.62
9	....	....	....	....	9	7	14	....	21	19	....	2	22.46
5	....	....	....	....	5	9	11	....	20	19	1	....	19.47
8	1	2	1	....	12	16	12	....	28	18	....	10	18.41
136	20	19	16	3	194	181	188	....	369	280	36	53	18.16

TABLE No. III.

Births, Marriages, and Deaths

CARROLL

TOWNS.	Population in 1890.	Births.									
		Sex.					Parentage.				
		Male.	Female.	Not stated.	Total.	Rate per 1,000.	Both American.	Both Foreign.	American mother and foreign father.	American father and foreign mother.	Not stated.
Albany	377	7	3	..	10	26.46	6	1	2	....	1
Bartlett	1,247	26	20	..	46	36.89	16	17	4	4	5
Brookfield	349	4	4	..	8	22.92	8	....	....	....	..
Chatham	329	....	4	..	4	12.15	4	....	....	....	..
Conway	2,331	27	31	1	59	25.31	40	14	2	2	1
Eaton	514	2	3	..	5	9.72	2	3	....	....	..
Effingham	720	6	1	..	7	9.72	6	....	1	....	..
Freedom	630	4	8	..	12	19.04	9	2	....	1	..
Hart's Location	187	1	....	..	1	5.35	1	....	....	....	..
Jackson	579	3	2	..	5	8.64	5	....	....	....	..
Madison	554	6	2	..	8	14.44	6	....	....	1	1
Moultonboro'	1,034	6	15	..	21	20.31	20	....	....	1	..
Ossipee	1,630	7	10	..	17	10.43	14	1	1	1	..
Sandwich	1,303	9	5	..	14	10.74	13	....	....	....	1
Tamworth	1,025	6	10	..	16	15.60	13	....	3	....	..
Tuftonborough	767	2	4	..	6	7.82	5	....	....	....	1
Wakefield	1,528	22	16	..	38	24.87	23	9	4	2	..
Wolfeborough	3,020	17	18	..	35	11.59	24	3	1	....	7
Total	18,124	155	156	1	312	17.21	215	50	18	12	17

No. III.

the year ending December 31, 1893.

COUNTY.

Marriages.						Deaths.							
						Sex.				Nativity.			
Both American.	Both foreign.	Husband American.	Wife American.	Not stated.	Total.	Male.	Female.	Not stated.	Total.	American.	Foreign.	Not stated.	Death-rate per 1,000.
5	....	...	....	....	5	1	4	....	5	3	....	2	13.23
8	5	....	1	....	14	12	12	....	24	22	2	....	19.25
3	...	....	....	....	3	4	2	....	6	5	....	1	17.19
4	....	....	....	....	4	1	1	....	2	2	....	....	6.08
32	....	1	3	2	38	16	25	1	42	37	4	1	18.01
7	....	1	....	....	8	3	5	....	8	4	....	4	15.56
11	....	1	....	....	12	4	9	....	13	8	....	5	18.06
13	....	....	1	....	14	3	6	....	9	4	....	5	14.29
....	....	....	....	....	.....	1	....	....	1	1	....	....	5.35
5	....	1	....	....	6	3	1	....	4	4	....	....	6.91
7	....	....	...	....	7	5	11	....	16	14	....	2	28.88
12	....	1	....	....	13	12	9	....	21	21	....	....	20.31
10	....	....	....	....	10	17	8	1	26	21	1	4	15.94
12	....	2	....	....	14	12	18	....	30	29	....	1	23.02
9	....	3	....	....	12	5	5	....	10	8	....	2	9.76
4	....	2	....	....	6	9	8	....	17	17	....	....	22.16
12	....	....	....	....	12	10	13	....	23	22	....	1	15.05
23	1	3	....	....	27	25	23	....	48	44	1	3	15.89
177	6	15	5	2	205	143	160	2	305	266	8	31	16.83

TABLE No. III.

MERRIMACK

TOWNS.	Population in 1890.	Births.									
		Sex.					Parentage.				
		Male.	Female.	Not stated.	Total.	Rate per 1,000.	Both American.	Both foreign.	American mother and foreign father.	American father and foreign mother.	Not stated.
Allenstown	1,475	27	24	..	51	34.58	4	44	2	1	..
Andover	1,090	10	13	..	23	21.10	21	....	1	....	1
Boscawen	1,487	17	11	2	30	20.17	11	8	5	4	2
Bow	725	6	3	1	10	13.79	9	....	1	....	..
Bradford	810	6	10	..	16	19.75	14	....	1	....	1
Canterbury	964	7	4	1	12	12.44	6	2	1	....	3
Chichester	661	7	2	..	9	13.61	9	....	....	....	..
Concord	17,004	224	224	..	448	26.35	213	148	36	43	8
Danbury	683	8	3	..	11	16.10	6	....	3	2	..
Dunbarton	524	6	4	..	10	19.08	7	1	....	2	..
Epsom	815	8	6	..	14	17.18	12	....	1	1	..
Franklin	4,085	52	62	..	114	27.91	50	40	9	11	4
Henniker	1,385	13	7	1	21	15.16	20	1	....	....	..
Hill	548	5	1	..	6	10.94	5	....	....	1	..
Hooksett	1,893	27	19	..	46	24.30	15	27	1	3	..
Hopkinton	1,817	16	11	..	27	14.86	21	4	1	....	1
Loudon	1,000	3	1	..	4	4.00	3	....	1	....	..
Newbury	487	5	1	..	6	12.32	6	....	....	....	..
New London	799	2	4	..	6	7.51	5	....	....	1	..
Northfield	1,115	13	3	..	16	14.35	10	4	1	....	1
Pembroke	3,172	55	45	..	100	31.52	13	74	2	7	4
Pittsfield	2,605	13	17	1	31	11.90	22	7	....	....	2
Salisbury	655	5	4	..	9	13.74	7	....	....	....	2
Sutton	849	4	4	..	8	9.42	6	2	....	....	..
Warner	1,383	13	13	..	26	18.51	22	2	1	1	..
Webster	564	2	7	..	9	15.95	7	....	2	....	..
Wilmot	840	4	2	..	6	7.14	6	....	....	....	..
Total	49,435	558	505	6	1,069	21.62	530	364	69	77	29

—*Continued.*

COUNTY.

Marriages.						Deaths.							
						Sex.				Nativity.			
Both American.	Both foreign.	Husband American.	Wife American.	Not stated.	Total.	Male.	Female.	Not stated.	Total.	American.	Foreign.	Not stated.	Death-rate per 1,000.
4	10	....	....	...	14	14	22	....	36	25	11	....	24.41
8	....	1	....	....	9	13	9	....	22	19	....	3	20.18
4	....	....	2	....	6	24	18	....	*42	34	3	5	28.24
3	....	....	....	....	3	9	12	....	21	20	1	....	28.96
6	....	....	....	....	6	11	14	....	25	23	....	2	30.86
7	....	....	....	....	7	9	11	....	20	15	2	3	20.74
7	....	....	....	....	7	4	3	....	7	5	....	2	10.59
118	38	27	13	1	197	211	226	....	†437	371	55	11	25.70
3	....	....	1	....	4	5	6	....	11	10	....	1	16.10
3	....	....	....	....	3	7	3	....	10	7	....	3	19.08
8	....	1	....	....	9	7	7	...	14	13	....	1	17.18
36	6	8	12	1	63	16	44	2	62	48	6	8	15.18
10	....	....	....	....	10	9	14	....	23	22	....	1	16.61
3	....	....	....	....	3	2	8	....	10	9	1	....	18.25
8	3	3	2	....	16	20	19	....	39	23	11	5	20.60
8	....	2	....	....	10	14	14	....	28	23	1	4	15.41
4	....	1	....	....	5	13	6	....	19	15	....	4	19.00
3	....	1	....	....	4	5	3	....	8	8	....	....	16.42
4	....	....	....	....	4	9	7	....	16	13	3	....	20.03
10	....	....	1	....	11	15	7	....	22	21	....	1	19.73
7	13	4	6	....	30	37	26	....	63	49	9	5	19.86
15	5	4	1	1	26	18	21	1	40	33	3	4	15.35
4	....	....	1	....	5	5	8	....	13	10	2	1	19.85
3	....	2	....	....	5	10	9	....	19	17	....	2	22.37
11	1	....	....	....	12	17	17	....	34	30	2	2	24.58
2	1	....	....	....	3	3	2	....	5	5	....	....	8.86
4	1	1	....	....	6	8	9	....	17	15	...	2	20.24
303	78	55	39	3	478	515	545	3	1,063	883	110	70	21.50

* Died at county farm, 18. † Died at public institutions, 61.

TABLE No. III

HILLSBOROUGH

TOWNS.	Population in 1890.	Births.									
		Sex.					Parentage.				
		Male.	Female.	Not stated.	Total.	Rate per 1,000.	Both American.	Both foreign.	American mother and foreign father.	American father and foreign mother.	Not stated.
Amherst	1,053	6	12	..	18	17.09	16	.....	.....	2	..
Antrim	1,248	14	16	..	30	24.04	18	4	2	5	1
Bedford	1,102	12	8	..	20	18.15	16	2	1	1	..
Bennington	542	9	7	..	16	29.52	10	5	1	.....	..
Brookline	548	12	5	..	17	31.02	11	2	....	2	2
Deering	531	2	8	..	10	18.83	7	2	....	1	..
Francestown	837	4	6	..	10	11.95	6	3	....	1	..
Goffstown	1,981	16	23	..	39	19.68	34	3	1	1	..
Greenfield	607	8	8	..	16	26.36	12	2	....	1	1
Greenville	1,255	31	37	..	68	54.18	10	48	4	5	1
Hancock	637	8	7	..	15	23.55	9	2	1	2	1
Hillsborough	2,120	19	26	..	45	21.23	37	3	4	1	..
Hollis	1,000	2	13	..	15	15.00	11	3	....	1	..
Hudson	1,092	11	10	..	21	19.23	14	1	3	3	..
Litchfield	252	1	.....	..	1	3.97	1	.....	.....	.....	..
Lyndeborough	657	10	3	..	13	19.79	11	.....	1	1	..
Manchester	44,126	585	543	22	1,150	26.06	207	735	66	82	60
Mason	629	6	7	..	13	20.67	8	3	....	2	..
Merrimack	951	8	5	..	13	13.67	9	4	...	.....	..
Milford	3,014	39	28	..	67	22.23	41	15	7	3	1
Mont Vernon	479	3	1	..	4	8.35	4	.....	.....	.....	..
Nashua	19,311	387	308	3	698	36.15	390	184	57	57	10
New Boston	1,067	9	17	..	26	24.37	15	5	3	3	..
New Ipswich	969	15	11	1	27	27.86	8	14	2	1	2
Pelham	791	5	6	..	11	13.91	3	2	2	2	2
Peterborough	2,507	19	20	..	39	15.56	24	10	....	4	1
Sharon	137	3	3	..	6	43.79	4	.....	.....	1	1
Temple	342	2	4	..	6	17.54	5	1	.....	.....	..
Weare	1,550	10	8	..	18	11.61	12	1	4	....	1
Wilton	1,850	27	28	..	55	29.73	22	9	8	5	11
Windsor	62	1	1	..	2	32.25	2	.....	.....	.....	..
Total	93,247	1,284	1,179	26	2,489	26.69	977	1,063	167	187	95

—*Continued.*

COUNTY.

Marriages.						Deaths.							
						Sex.				Nativity.			
Both American.	Both foreign.	Husband American.	Wife American.	Not stated.	Total.	Male.	Female.	Not stated.	Total.	American.	Foreign.	Not stated.	Death-rate per 1,000.
6	....	1	..	..	7	11	25	...	36	33	1	2	34.19
12	....	2	1	..	15	17	14	...	31	21	2	8	24.83
3	....	....	..	..	3	14	17	...	31	24	4	3	28.13
5	1	....	..	..	6	2	6	...	8	8	....	....	14.76
4	1	2	..	..	7	4	5	...	9	8	....	1	16.42
3	1	....	..	..	4	5	7	...	12	10	....	2	22.60
1	....	....	..	..	1	3	9	...	12	11	....	1	14.34
17	....	....	..	..	17	10	11	...	21	20	....	1	10.60
6	....	....	..	..	6	4	8	...	12	11	....	1	19.77
2	4	1	..	1	8	23	11	...	34	28	4	2	27.09
2	....	....	..	..	2	11	8	...	19	17	2	...	29.83
23	....	2	2	..	27	24	21	...	45	42	1	2	21.23
3	....	2	1	..	6	9	6	...	15	13	1	1	15.00
7	....	1	..	..	8	15	12	...	27	18	5	4	24.73
....	....	1	..	..	1	1	3	...	4	2	....	2	15.87
5	....	1	..	..	6	7	9	...	16	13	1	2	24.35
190	303	78	57	4	632	519	542	10	†1,071	699	316	56	24.27
3	....	....	1	..	4	5	6	...	11	9	1	1	17.49
6	....	....	..	..	6	12	4	...	16	13	3	....	16.82
18	3	4	1	..	26	22	34	...	56	51	5	....	18.58
4	....	....	..	..	4	2	3	...	5	4	....	1	10.48
123	106	24	22	1	276	194	196	...	390	253	61	76	20.19
5	....	....	1	..	6	14	9	...	23	18	2	3	21.56
7	....	2	1	..	10	3	9	...	12	12	....	....	12.38
3	....	2	1	..	6	15	9	...	24	19	2	3	30.34
11	1	1	..	..	13	22	20	...	42	35	6	1	16.75
3	....	....	..	..	3	1	1	...	2	1	1	....	14.59
2	....	....	..	..	2	2	3	...	5	5	....	....	14.62
14	....	1	..	..	15	15	19	...	34	30	1	3	21.94
9	1	1	..	..	11	46	32	...	78*	31	11	36	41.62
....	....	....	..	..	....	1	1	...	2	2	....	....	32.25
497	421	126	88	6	1,138	1,033	1,060	10	2,103	1,461	430	212	22.55

* Died at county farm, 20. † Died at public institutions, 33.

TABLE No. III.

CHESHIRE

TOWNS.	Population in 1890.	Births.									
		Sex.					Parentage.				
		Male.	Female.	Not stated.	Total.	Rate per 1,000.	Both American.	Both foreign.	American mother and foreign father.	American father and foreign mother.	Not stated.
Alstead	870	7	3	..	10	11.49	7	....	....	1	2
Chesterfield	1,046	5	7	..	12	11.47	11	....	....	....	1
Dublin	582	1	5	..	6	10.31	3	....	2	1	..
Fitzwilliam	1,122	6	8	..	14	12.48	9	2	3	....	..
Gilsum	643	12	9	..	21	32.66	13	1	2	3	2
Harrisville	748	5	11	..	16	21.39	7	5	1	3	..
Hinsdale	2,258	22	31	..	53	23.47	25	18	4	6	..
Jaffrey	1,469	15	20	..	35	23.82	14	16	2	3	..
Keene	7,446	72	77	2	151	20.28	84	34	11	18	4
Marlborough	1,695	39	14	..	53	31.27	15	28	3	6	1
Marlow	584	7	5	..	12	22.43	11	....	....	....	1
Nelson	332	3	3	..	6	18.07	5	1	....	....	..
Richmond	476	8	5	..	13	27.31	8	2	1	1	1
Rindge	996	13	14	..	27	27.11	15	7	2	3	..
Roxbury	129	1	....	..	1	7.75	1	....	....	....	..
Stoddard	400	....	2	..	2	5.00	2	....	....	....	..
Sullivan	337	2	1	1	4	11.86	3	1	....	....	..
Surry	270	1	2	..	3	11.11	3	....	....	....	..
Swanzey	1,600	23	28	1	52	32.50	41	5	4	2	..
Troy	999	16	22	..	38	38.03	15	14	2	4	3
Walpole	2,163	36	35	..	71	32.82	34	26	3	8	..
Westmoreland	830	6	9	..	15	18.07	1	....	....	....	14
Winchester	2,584	30	20	..	50	19.35	29	17	1	2	1
Total	29,579	330	331	4	665	22.47	356	177	41	61	30

—*Continued.*

COUNTY.

Marriages.						Deaths.							
						Sex.				Nativity.			
Both American.	Both foreign.	Husband American.	Wife American.	Not stated.	Total.	Male.	Female.	Not stated.	Total.	American.	Foreign.	Not stated.	Death-rate per 1,000.
3	1	1	....	....	5	6	10	....	16	15	....	1	18.39
6	1	....	....	....	7	9	9	....	18	17	....	1	17.21
2	....	....	1	....	3	3	2	....	5	4	....	1	8.59
9	1	1	1	....	12	19	11	....	30	24	2	4	26.74
2	1	....	....	....	3	5	3	....	8	7	1	....	12 48
....	1	....	3	....	4	7	5	....	12	9	3	....	16.04
6	1	2	2	....	11	21	21	....	42	32	5	5	18.60
9	6	1	2	....	18	11	20	....	31	23	5	3	21.10
62	3	6	2	....	73	88	71	....	159	135	21	3	21.35
13	5	6	1	....	25	19	22	....	41	32	6	3	24.19
3	....	....	....	....	3	9	4	....	13	12	....	1	23.97
1	....	1	1	....	3	4	1	....	5	4	1	....	15.06
3	....	1	....	....	4	6	8	....	14	13	1	....	29.41
5	1	....	....	....	6	15	10	....	25	22	....	3	25.10
....	....	....	....	....	....	2	1	...	3	3	....	....	23.25
1	....	....	....	....	1	5	6	....	11	9	1	1	27.50
2	....	....	....	....	2	1	1	....	2	1	1	....	5.94
1	....	....	1	....	2	1	2	....	3	1	....	2	11.11
9	....	....	1	....	10	20	15	....	35	33	2	....	21.88
7	5	....	....	....	12	8	8	....	16	14	1	1	16.01
15	1	5	1	....	22	24	15	....	39	31	8	....	18.03
3	....	....	1	....	4	19	10	....	*29	17	1	11	34.93
15	7	....	3	....	25	21	17	....	38	29	5	4	14.73
177	34	24	20	....	255	323	272	....	595	487	64	44	20.11

* Died at county farm, 9.

TABLE No. III.

SULLIVAN

TOWNS.	Population in 1890.	Births.									
		Sex.					Parentage.				
		Male.	Female.	Not stated.	Total.	Rate per 1,000.	Both American.	Both foreign.	American mother and foreign father.	American father and foreign mother.	Not stated.
Acworth	717	4	4	..	8	11.16	8	....	....	....	..
Charlestown	1,466	18	5	..	23	14.68	17	1	3	1	1
Claremont	5,565	67	63	..	130	23.35	59	41	15	10	5
Cornish	954	6	5	..	11	11.53	9	....	....	1	1
Croydon	512	2	3	..	5	9.76	3	....	....	1	1
Goshen	384	4	1	..	5	13.02	5	....	....	....	..
Grantham	424	4	9	..	13	30.66	9	....	1	1	2
Langdon	305	3	....	..	3	9.87	3	....	....	....	..
Lempster	519	5	5	..	10	19.27	8	....	1	1	..
Newport	2,623	29	28	..	57	21.73	38	10	6	2	1
Plainfield	1,173	2	11	..	13	11.08	10	....	....	1	2
Springfield	540	4	5	..	9	16.67	8	....	....	....	1
Sunapee	900	7	7	..	14	15.56	10	2	1	....	1
Unity	653	8	2	..	10	15.31	7	3	....	....	..
Washington	569	....	1	..	1	1.75	1	....	....	....	..
Total	17,304	163	149	..	312	18.03	195	57	27	18	15

—*Continued.*

COUNTY.

Marriages.						Deaths.							
						Sex.				Nativity.			
Both American.	Both foreign.	Husband American.	Wife American.	Not stated.	Total.	Male.	Female.	Not stated.	Total.	American.	Foreign.	Not stated.	Death-rate per 1,000.
1	....	....	....	....	1	9	10	....	19	17	....	2	26.50
12	....	1	1	....	14	19	16	....	35	29	5	1	23.87
40	12	3	7	1	63	48	53	....	101	84	12	5	18.15
10	....	....	....	....	10	9	12	....	21	18	3	....	22.01
4	....	....	2	....	6	4	7	....	11	10	....	1	21.48
2	....	1	....	....	3	6	3	....	9	9	....	....	23.43
2	....	....	1	....	3	4	4	....	8	8	....	....	18.87
1	....	....	....	....	1	4	4	....	8	7	....	1	26.22
4	....	....	....	....	4	5	8	....	13	12	1	....	25.04
18	2	....	1	....	21	40	26	....	66	52	6	8	25.16
8	....	....	....	....	8	8	13	....	21	21	....	....	17.90
2	....	....	....	....	2	7	8	....	15	14	....	1	27.78
4	....	2	3	....	9	7	12	....	19	16	1	2	21.11
1	....	....	....	....	1	6	4	....	*10	8	1	1	15.31
5	....	....	....	....	5	3	3	....	6	5	1	....	10.54
114	14	7	15	1	151	179	183	....	362	310	30	22	20.92

* Died at the county farm, 2.

TABLE No. III.

GRAFTON

TOWNS.	Population in 1890.	Births.									
		Sex.					Parentage.				
		Male.	Female.	Not stated.	Total.	Rate per 1,000.	Both American.	Both foreign.	American mother and foreign father.	American father and foreign mother.	Not stated.
Alexandria	679	8	6	..	14	20.62	11	....	1	....	2
Ashland	1,193	18	11	..	29	24.30	20	5	1	3	..
Bath	935	6	6	..	12	12.83	8	2	1	....	1
Benton	244	....	....	..	....	....	....	....	....	....	..
Bethlehem	1,267	8	13	..	21	15.67	12	4	2	2	1
Bridgewater	332	2	2	..	4	12.05	4	....	....	....	..
Bristol	1,524	14	15	..	29	19.03	17	2	1	1	8
Campton	982	7	4	1	12	12.22	7	1	4	....	..
Canaan	1,417	16	9	..	25	17.64	19	1	1	....	4
Dorchester	379	4	3	..	7	18.47	5	2	....	....	..
Easton	248	5	1	..	6	24.19	6	....	....	....	..
Ellsworth	150	2	....	..	2	13.33	2	....	....	....	..
Enfield	1,439	11	6	..	17	11.81	14	2	1	....	..
Franconia	594	6	4	..	10	16.83	7	1	1	...	1
Grafton	787	9	9	..	18	22.87	16	....	1	....	1
Groton	464	8	9	..	17	36.63	12	2	1	1	1
Hanover	1,817	24	14	..	38	20.91	28	3	1	6	..
Haverhill	2,545	26	20	..	46	18.07	34	4	1	3	4
Hebron	245	3	1	..	4	16.33	2	....	1	1	..
Holderness	595	2	7	..	9	15.12	8	....	....	1	..
Landaff	499	6	5	..	11	22.04	7	1	1	1	1
Lebanon	3,763	43	46	..	89	23.64	55	17	11	2	4
Lincoln	110	....	3	..	3	27.27	3	....	....	....	..
Lisbon	2,060	14	12	..	26	12.62	16	2	4	4	..
Littleton	3,365	59	31	1	91	27.04	45	22	11	10	3
Livermore	155	1	3	..	4	25.81	....	2	1	1	..
Lyman	543	8	8	..	16	33.14	12	....	2	1	1
Lyme	1,154	12	9	1	22	19.06	18	1	1	1	1
Monroe	478	8	7	..	15	31.38	10	1	3	1	..
Orange	245	2	4	..	6	24.49	4	1	....	1	..
Orford	916	13	9	..	22	24.02	21	....	1	....	..
Piermont	709	5	5	..	10	14.10	7	2	....	1	..
Plymouth	1,852	14	11	..	25	13.49	24	....	....	1	..
Rumney	947	10	11	..	21	22.17	18	....	2	....	1
Thornton	632	4	5	..	9	14.24	8	1	....	....	..
Warren	875	4	6	..	10	11.43	9	....	....	1	..
Waterville	39	....	....	..	....	....	....	....	....	....	..
Wentworth	698	9	5	..	14	20.05	12	1	....	....	1
Woodstock	341	1	5	..	6	17.59	5	....	....	1	..
Total	37,217	392	325	3	720	19.34	506	80	55	44	35

Continued.

COUNTY.

Marriages.						Deaths.							
						Sex.				Nativity.			
Both American.	Both foreign.	Husband American.	Wife American.	Not stated.	Total.	Male.	Female.	Not stated.	Total.	American.	Foreign.	Not stated.	Death-rate per 1,000.
4	....	....	....	....	4	7	7	....	14	8	....	6	20.62
17	5	1	....	1	24	9	12	....	21	17	3	1	18.44
6	1	1	....	....	8	4	12	....	16	12	1	3	17.11
....	2	....	....	....	2	3	4	....	7	7	....	....	28.68
5	1	....	....	....	6	19	7	....	26	18	5	3	20.52
1	....	....	....	....	1	2	3	....	5	5	....	....	15.06
8	....	1	....	....	9	17	10	....	27	22	....	5	17.72
5	....	....	....	....	5	11	10	....	21	17	2	2	21.39
9	....	....	1	....	10	25	17	....	42	34	1	7	29.64
1	....	....	....	....	1	4	1	....	5	4	1	....	13.19
2	....	....	....	....	2	2	2	....	4	4	....	....	16.13
1	....	....	....	....	1	2	....	....	2	1	....	1	13.33
12	....	....	....	....	12	8	13	....	21	19	....	2	14.59
2	....	2	....	....	4	3	4	....	7	5	....	2	11.74
7	....	....	....	....	7	9	9	....	18	18	....	....	22.87
4	....	1	....	....	5	4	2	....	6	5	1	....	12.92
13	....	1	1	....	15	18	15	....	33	30	2	1	18.16
25	1	6	1	....	33	34	25	....	*59	27	2	30	23.18
1	....	....	....	....	1	3	1	....	4	4	....	....	16.33
10	....	....	....	....	10	5	4	....	9	7	1	1	15.12
2	....	....	....	....	2	3	7	....	10	9	....	1	20.04
40	3	8	7	....	58	36	41	....	77	63	10	4	20.40
....	....	....	....	1	1	4	4	....	8	2	2	4	72.72
13	1	2	2	....	18	21	19	....	40	36	3	1	19.41
28	4	8	7	....	47	37	24	....	61	50	8	3	18.13
....	....	....	....	....	....	1	....	....	1	1	....	....	6.47
3	....	....	1	....	4	3	4	....	7	5	....	2	12.89
9	....	1	....	....	10	13	13	....	26	24	1	1	22.53
4	....	....	....	....	4	3	3	....	6	5	1	....	12.55
2	....	....	....	....	2	1	3	....	4	4	....	....	16.32
5	....	1	....	....	6	7	9	....	16	16	....	....	17.46
4	....	....	1	....	5	3	4	....	7	5	1	1	9.87
9	1	4	....	....	14	10	16	....	26	20	2	4	14.04
6	....	....	1	....	7	8	7	....	15	12	1	2	15.84
2	....	1	....	....	3	5	10	....	15	11	1	3	23.73
6	....	2	....	....	8	5	8	....	13	9	1	3	14.85
....	....	....	....	....	....	1	....	....	1	....	1	....	25.64
2	....	1	....	....	3	8	2	....	10	8	....	2	14.33
1	1	1	1	....	4	4	2	....	6	5	....	1	17.59
269	20	42	23	2	356	362	334	....	696	549	51	96	18.70

* Died at the county farm, 17.

TABLE No. III.

COÖS

TOWNS.	Population in 1890.	Births.									
		Sex.					Parentage.				
		Male.	Female.	Not stated.	Total.	Rate per 1,000.	Both American.	Both foreign.	American mother and foreign father.	American father and foreign mother.	Not stated.
Berlin	3,729	151	123	..	274	73.47	23	215	20	12	4
Carroll	813	1	4	..	5	6.15	....	3	1	....	1
Clarksville	325	4	1	..	5	15.38	4	....	....	1	..
Colebrook	1,736	18	13	..	31	17.85	17	....	5	8	1
Columbia	605	6	4	..	10	16.55	4	....	2	3	1
Dalton	596	5	4	..	9	15.10	5	2	1	....	1
Dummer	455	1	3	..	4	8.76	2	....	....	1	1
Errol	178	4	....	1	5	28.09	2	....	....	1	2
Gorham	1,710	21	28	..	49	28.65	11	21	12	3	2
Jefferson	1,062	14	13	1	28	26.36	8	7	6	5	2
Lancaster	3,373	31	30	..	61	18.08	30	17	3	6	5
Milan	1,029	7	14	1	22	21.36	7	3	2	....	10
Millsfield	62	2	1	..	3	48.38	....	....	....	2	1
Northumberla'd	1,356	15	17	..	32	23.59	14	11	3	4	..
Pittsburg	669	3	10	..	13	19.43	10	....	3	....	..
Randolph	137	1	1	..	2	14.59	1	....	....	....	1
Shelburne	336	1	2	..	3	8.92	1	1	1	....	..
Stark	703	7	9	..	16	22.75	7	6	3	....	..
Stewartstown	1,002	12	9	..	21	20.74	9	2	2	3	5
Stratford	1,128	16	20	..	36	31.91	15	11	1	7	2
Whitefield	2,041	22	18	3	43	21.06	19	17	4	2	1
Total	23,211	342	324	6	672	28.95	189	316	69	58	40

—*Continued.*

COUNTY.

Marriages.						Deaths.							
						Sex.				Nativity.			
Both American.	Both foreign.	Husband American.	Wife American.	Not stated.	Total.	Male.	Female.	Not stated.	Total.	American.	Foreign.	Not stated.	Death-rate per 1,000.
14	30	7	15	1	67	81	61	1	143	95	40	8	38.34
2	....	2	1	....	5	4	2	....	6	2	2	2	7.38
2	1	....	....	....	3	3	3	....	6	4	1	1	18.46
14	2	5	4	....	25	12	10	....	22	20	1	1	12.67
1	....	1	....	....	2	2	7	....	9	5	1	3	14.90
7	....	....	1	1	9	2	5	....	7	5	....	2	11.74
3	....	....	....	....	3	1	....	....	1	1	....	....	2.19
6	....	....	....	....	6	....	....	....	....	....	....	....	.....
17	2	8	5	....	32	10	2	....	12	10	1	1	7.01
3	....	....	3	....	6	5	6	1	12	9	1	2	11.29
20	8	4	4	1	37	22	18	....	40	29	4	7	11.85
6	....	....	1	....	7	4	1	1	6	4	....	2	5.83
....	....	....	....	....	....	....	....	....	....	....	....	....	.....
9	1	3	1	....	14	10	15	....	25	16	7	2	18.43
4	....	2	2	....	8	9	5	....	14	10	1	3	20.92
....	....	....	....	....	....	....	2	....	2	1	1	....	14.59
4	1	2	....	....	7	....	2	....	2	2	....	....	5.94
5	....	1	....	....	6	6	2	....	8	5	3	....	11.38
8	1	2	3	....	14	14	9	....	23	11	3	9	22.95
4	4	2	1	....	11	13	15	....	28	19	3	6	24.82
17	3	3	13	2	38	16	12	1	29	22	3	4	14.20
146	53	42	54	5	300	214	177	4	395	270	72	53	17.02

TABLE No. III.

RECAPITULATION

COUNTIES.	Population in 1890.	Births.									
		Sex.					Parentage.				
		Male.	Female.	Not stated.	Total.	Rate per 1,000.	Both American.	Both foreign.	American mother and foreign father.	American father and foreign mother.	Not stated.
Rockingham .	49,650	460	429	6	895	18.03	562	179	59	66	29
Strafford.....	38,442	434	422	5	861	22.39	346	387	52	58	18
Belknap.....	20,321	189	155	9	353	17.37	178	104	16	28	27
Carroll.....	18,124	155	156	1	312	17.21	215	50	18	12	17
Merrimack...	44,435	558	505	6	1,069	21.62	530	364	69	77	29
Hillsborough.	93,247	1,284	1,179	26	2,489	26.69	977	1,063	167	187	95
Cheshire.....	29,579	330	331	4	665	22.47	356	177	41	61	30
Sullivan.....	17,304	163	149	...	312	18.03	195	57	27	18	15
Grafton.....	37,217	392	325	3	720	19.34	506	80	55	44	35
Cöos.....	23,211	342	324	6	672	28.95	189	316	69	58	40
Total	376,530	4,307	3,975	66	8,348	22.17	4,054	2,777	373	609	335

—*Concluded.*

BY COUNTIES.

Marriages.						Deaths.							
						Sex.			Nativity.				
Both American.	Both foreign.	Husband American.	Wife American.	Not stated.	Total.	Male.	Female.	Not stated.	Total.	American.	Foreign.	Not stated.	Death-rate per 1,000.
379	55	64	40	8	546	525	504	4	1,033	816	100	117	20.80
292	68	43	31	33	467	351	390	1	742	525	128	89	19.30
136	20	19	16	3	194	181	188	..	369	280	36	53	18.16
177	6	15	5	2	205	143	160	2	305	266	8	31	16.83
303	78	55	39	3	478	515	545	3	1,063	883	110	70	21.50
497	421	126	88	6	1,138	1,033	1,060	10	2,103	1,461	430	212	22.55
177	34	24	20	....	255	323	272	..	595	487	64	44	20.11
114	14	7	15	1	151	179	183	..	362	310	30	22	20.92
269	20	42	23	2	356	362	334	..	696	549	51	96	18.70
146	53	42	54	5	300	214	177	4	395	270	72	53	17.02
2,490	769	437	331	63	4,090	3,826	3,813	24	7,663	5,847	1,029	787	20.35

TABLE

Births by Sex and

COUNTIES.		January.	February.	March.	April.	May.
Rockingham	Males	35	27	37	39	45
	Females	39	31	33	25	45
	Not stated	.....	.....	3	.....	.....
Strafford	Males	35	42	38	38	44
	Females	35	27	39	37	39
	Not stated	.....	.....	.....	.....	1
Belknap	Males	16	13	24	13	20
	Females	11	7	11	15	16
	Not stated	.....	1	2	.....	2
Carroll	Males	14	8	9	18	16
	Females	11	10	13	12	17
	Not stated	.....	1	.....	.....	.....
Merrimack	Males	33	39	45	66	40
	Females	36	40	50	37	45
	Not stated	.....	.....	.....	.....	1
Hillsborough	Males	110	95	109	100	104
	Females	98	95	117	95	100
	Not stated	4	4	3	1	2
Cheshire	Males	21	24	28	33	38
	Females	29	16	26	34	28
	Not stated	.....	.....	2	1	.....
Sullivan	Males	6	16	13	13	18
	Females	12	12	18	12	16
	Not stated	.....	.....	.....	.....	.....
Grafton	Males	26	33	35	30	27
	Females	22	24	29	24	26
	Not stated	.....	.....	.....	.....	.....
Coös	Males	22	15	28	24	39
	Females	18	29	32	34	30
	Not stated	1	2	.....	1	.....
Total	Males	318	312	366	374	391
	Females	311	291	368	325	362
	Not stated	5	8	10	3	6
Grand total		634	611	744	702	759

No. IV.

Month, by Counties, 1893.

June.	July.	August.	September.	October.	November.	December.	Not stated.	Total.	Grand total.
43	34	38	49	41	36	36	.....	460	.....
35	37	48	41	36	28	29	2	429	.....
.....	1	.....	.....	.....	.....	1	1	6	895
32	37	36	35	30	28	39	.....	434	.....
34	45	35	28	39	30	34	.....	422	.....
1	1	.....	1	1	.....	.....	.....	5	861
16	16	17	12	17	10	15	.....	189	.....
11	14	14	15	14	13	14	.....	155	.....
.....	.....	1	1	1	.....	1	.....	9	353
5	18	14	12	12	12	17	.....	155	.....
11	18	14	12	17	9	12	.....	156	.....
.....	.....	.....	.....	.....	.....	.....	.....	1	312
62	55	45	54	40	38	41	.....	558	.....
47	50	51	41	46	36	26	.....	505	.....
.....	.....	1	1	1	.....	2	.....	6	1,069
108	118	97	113	125	107	98	.....	1,284	.....
109	104	90	89	83	114	85	.....	1,179	.....
1	6	.....	2	2	.....	1	.....	26	2,489
25	22	36	23	29	30	21	.....	330	.....
22	31	25	24	29	32	34	1	331	.....
.....	.....	1	.....	.....	.....	.....	.....	4	665
9	16	21	19	12	9	11	.....	163	.....
18	8	20	7	6	7	13	.....	149	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	312
22	38	40	35	40	27	39	.....	392	.....
31	36	23	24	30	25	31	.....	325	.....
.....	.....	1	.....	.....	.....	2	.....	3	720
39	40	27	37	26	25	20	.....	342	.....
25	37	24	32	25	18	20	.....	324	.....
.....	1	.....	.....	.....	1	.....	.....	6	672
361	394	371	389	372	322	337	.....	4,307	.....
343	380	344	313	325	312	298	3	3,975	.....
2	9	4	5	5	1	7	1	66	8,348
706	783	719	707	702	635	642	4	8,348	8,348

TABLE

Twin Births by Months, Counties,

COUNTIES.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Rockingham	....	1	1	1	....	3	....	2	1	1	....	....
Strafford	....	....	....	....	3	....	1	....	1	1	....	....
Belknap	1	....	1	....	....	....	....	....	....	....	....	....
Carroll	....	....	....	....	....	....	....	1	....	....	....	1
Merrimack	....	1	2	....	1	1	1	....	2	1	1	....
Hillsborough	....	1	1	....	1	3	....	2	1	....	1	1
Cheshire	....	....	1	2	2	1	2	....	....	....	....	1
Sullivan	....	....	....	....	1	....	....	1	....	1	....	....
Grafton	....	....	1	1	....	....	5	1	2	1	....	....
Coös	....	....	....	1	....	1	3	....	....	2	....	....
TRIPLETS												
Hillsborough	....	....	....	....	....	1	....	....	....	....	....	....

No. V.

Sex, and Nativity, for 1893.

Not stated.	Total.	Living.	Still-born.	Sex.		Both American.	Both foreign.	American mother.	American father.	Not stated.
				Male.	Female.					
.....	10	17	3	13	7	4	5	.....	.....	1
.....	6	11	1	4	8	.....	6*	.....	.....	.....
.....	2	4	.....	2	2	.....	1	.....	1	.....
.....	2	4	.....	4	.....	1	.....	1	.....	.....
.....	10	20	.....	5	15	7	3	.....	.....	.....
.....	11	22	.....	8	14	6	4	.....	1	.....
.....	9	18	.....	10	8	6	1	1	1	.....
.....	3	5	1	4	2	3	.....	.....	.....	.....
.....	11	20	2	14	8	8	1	2	.....	.....
.....	7	12	2	6	8	2	5	.....	.....	.....
.....	1	3	.....	2	1	.....	.....	.....	1	.....

TABLE

Births showing Age of Mother,

Number of Child.	Under 15.			15 to 20.			20 to 25.			25 to 30.			30 to 35.		
	American.	Foreign.	Not stated.	American.	Foreign.	Not stated.	American.	Foreign.	Not stated.	American.	Foreign.	Not stated.	American.	Foreign.	Not stated.
1st	*3	1	...	344	144	2	568	365	15	273	176	7	119	52	3
2d	..	..	...	78	26	5	364	257	9	298	206	9	138	72	4
3d	..	..	...	11	4	1	156	161	4	222	184	5	144	83	2
4th	..	..	...	1	1	....	57	65	2	137	176	3	122	95	4
5th	..	..	...	....	....	....	22	21	3	81	104	5	109	97	..
6th	..	..	...	....	....	....	3	4	...	29	64	..	61	77	4
7th	..	..	...	....	....	....	.....	5	...	16	31	..	44	60	1
8th	..	..	...	....	....	....	.....	1	...	2	13	..	25	46	..
9th	..	..	...	....	....	....	.....	.....	...	1	....	..	14	23	..
10th	..	..	...	....	....	....	.....	.....	...	1	1	..	5	14	..
11th	..	..	...	....	....	....	1	1	...	1	.....	..	1	7	..
12th	..	..	...	....	....	....	.....	.....	...	.....	.....	..	1	2	1
13th	..	..	...	....	....	....	.....	.....	...	.....	.....	..	...	1	..
14th	..	..	...	....	....	....	.....	.....	...	.....	.....	..	...	...	..
15th	..	..	...	...	....	....	.....	.....	...	.....	.....	..	...	...	..
16th	..	..	...	....	....	....	.....	.....	...	.....	.....	..	...	1	..
17th	..	..	...	....	....	....	.....	.....	...	.....	.....	..	...	3	..
18th	..	..	...	....	....	....	.....	.....	...	.....	.....	..	...	...	..
19th	..	..	...	....	....	....	.....	.....	...	.....	.....	..	...	...	..
22d	..	..	...	....	....	....	.....	.....	...	.....	.....	..	...	...	..
Not stated	..	..	...	8	1	....	26	36	3	17	36	1	19	18	..
Total..	3	1	...	442	176	8	1,197	916	35	1,078	991	30	802	648	19

* One was 13 years of age.

No. VI.

Number of Child, by Nationality. *

35 to 40.			40 to 45.			45 to 50.			Not stated.			Total.			Grand total.
American.	Foreign.	Not stated.	American.	Foreign.	Not stated.	American.	Foreign.	Not stated.	American.	Foreign.	Not stated.	American.	Foreign.	Not stated.	
48	8	..	11	5	....	1	....	..	40	13	10	1,407	764	37	2,208
60	18	..	17	....	....	1	....	..	24	14	13	980	593	40	1,613
66	31	1	15	....	1	1	1	..	30	4	9	645	468	23	1,136
66	31	..	15	5	....	....	1	..	15	4	2	413	378	11	802
58	33	1	8	7	....	3	1	..	14	6	7	295	269	16	580
44	39	5	10	9	....	1	1	..	5	8	4	153	202	13	368
35	38	4	18	11	1	1	1	.	4	2	1	118	148	7	273
29	42	..	14	12	2	1	1	..	4	3	1	75	118	3	196
20	37	1	12	16	....	1	1	..	5	....	1	53	77	2	132
16	25	..	13	21	....	....	2	..	3	1	.	38	64	....	102
6	20	..	5	19	....	1	3	1	....	1	..	15	51	1	67
4	24	..	3	24	....	....	2	..	3	....	..	11	52	1	64
4	10	2	3	13	....	....	3	..	1	....	..	8	27	2	37
...	6	..	1	15	....	....	2	..	....	....	..	1	23	....	24
...	4	..	2	9	1	....	....	..	....	1	..	2	14	1	17
...	4	..	1	10	....	....	4	..	....	....	..	1	19	....	20
...	....	..	....	2	....	....	....	..	....	....	..	.....	5	....	5
...	....	..	....	1	....	....	1	..	....	....	..	.....	2	....	2
...	....	..	....	1	....	....	....	..	....	....	..	.....	1	....	1
...	....	..	....	1	....	....	....	..	....	....	..	.....	1	....	1
11	13	1	2	5	....	....	....	..	34	24	17	117	133	21	429
467	386	15	150	186	5	11	24	1	182	81	65	4,332	3,409	178	7,919

* Not including still-births.

TABLE No. VII.

Still-births, showing number of Child and Age of Mother.

Number of Child.	Age of Mother.										
	Under 15.	15 to 20.	20 to 25.	25 to 30.	30 to 35.	35 to 40.	40 to 45.	45 to 50.	Over 50.	Not stated.	Total.
1st	....	31	52	34	19	3	....	....	....	9	148
2d	....	7	24	19	10	4	4	....	....	4	72
3d	....	....	12	14	13	2	3	....	....	2	46
4th	....	1	6	10	9	4	2	....	....	2	34
5th	....	....	1	4	8	4	2	....	....	1	20
6th	....	....	....	1	9	7	....	2	....	1	20
7th	....	....	....	5	2	4	3	....	....	....	14
8th	....	....	...	1	2	2	2	....	....	....	7
9th	....	....	....	....	2	3	2	....	....	....	7
10th	....	....	....	....	3	2	7	....	....	1	13
11th	....	....	....	....	1	4	2	....	....	1	8
12th	....	...	....	....	....	1	2	1	....	....	4
13th	....	....	....	....	....	....	1	....	....	....	1
14th	....	....	....	....	1	....	1	1	....	....	3
15th	....	....	....	....	....	1	....	....	....	....	1
16th	....	....	....	....	....	....	1	....	....	....	1
17th	....	....	....	....	....	....	....	....	....	....	....
18th	....	....	....	....	....	....	....	....	....	....	....
19th	....	....	....	....	....	....	....	....	....	....	....
20th	....	....	....	....	....	1	....	....	....	....	1
Not stated	....	3	6	3	2	6	....	1	....	8	29
Total	....	42	101	91	81	48	32	5	....	29	429

TABLE VIII.

Still-births, by Sex, Parentage, and Months, by Counties.

COUNTIES.	Sex.			Parentage.						Months.											
	Male.	Female.	Not stated.	Both American.	Both foreign.	American mother and foreign father.	American father and foreign mother.	Not stated.	Total.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Rockingham	29	15	....	22	7	6	7	2	44	4	4	4	2	5	5	8	3	4	1	3	1
Strafford	20	16	2	12	21	1	3	1	38	1	3	2	3	8	2	4	1	5	3	2	4
Belknap	9	9	1	9	5	....	....	5	19	1	1	2	5	2	2	....	2	....	1	2	1
Carroll	6	3	....	6	2	....	....	1	9	2	....	2	....	1	2	1	....	....	1	....	....
Merrimack	21	18	1	22	12	....	1	5	40	3	1	5	7	3	1	3	2	4	5	3	3
Hillsborough	100	61	12	42	102	8	7	14	173	19	18	19	15	8	12	19	9	15	11	17	11
Cheshire	18	12	....	14	10	3	1	2	30	3	1	7	3	3	4	4	1	2	1	....	1
Sullivan	12	5	....	12	2	....	1	2	17	....	4	1	....	5	1	2	1	1	2	....	....
Grafton	17	15	....	21	6	1	2	2	32	5	1	2	1	1	5	3	....	4	2	2	6
Cöos	12	14	1	8	14	2	2	1	27	....	3	2	6	2	4	3	1	...	3	1	2
Total	244	168	17	168	181	21	24	35	429	38	36	46	42	38	38	47	20	35	30	30	29

MARRIAGES.

TABLE No. IX.

Marriages by Counties and Nativity, 1893.

COUNTIES.	Both American.	Both foreign.	Groom American.	Bride American.	Not stated.	Total.
Rockingham	379	55	64	40	8	546
Strafford	292	68	43	31	33	467
Belknap	136	20	19	16	3	194
Carroll	177	6	15	5	2	205
Merrimack	303	78	55	39	3	478
Hillsborough	497	421	126	88	6	1,138
Cheshire	177	34	24	20	.....	255
Sullivan	114	14	7	15	1	151
Grafton	269	20	42	23	2	356
Coös	146	53	42	54	5	300
Total	2,490	769	437	331	63	4,090

TABLE No. X.

Marriages by Month and Counties.

COUNTIES.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Not stated.	Total.
Rockingham.	45	36	25	56	39	64	46	35	48	51	57	44	..	546
Strafford....	39	29	26	50	16	44	48	37	50	32	52	42	2	467
Belknap.....	12	7	7	19	15	32	14	16	19	22	11	19	1	194
Carroll.....	13	7	17	16	11	16	15	19	21	20	27	23	..	205
Merrimack..	35	34	22	53	32	54	26	32	53	45	49	42	1	478
Hillsborough	98	82	54	121	102	160	91	101	91	94	89	50	5	1,138
Cheshire....	22	18	19	21	15	27	18	17	25	26	24	20	3	255
Sullivan.....	14	11	8	10	10	18	10	12	13	14	19	12	..	151
Grafton.....	23	22	27	31	34	32	20	21	28	32	37	43	6	356
Coös.....	18	20	14	23	20	26	28	22	29	38	33	27	2	300
Total....	319	266	219	400	294	473	316	312	377	374	398	322	20	4,090

TABLE No. XI.

Ages of Grooms.	Ages of Brides.														
	Under 20.	20 to 25.	25 to 30.	30 to 35.	35 to 40.	40 to 45.	45 to 50.	50 to 55.	55 to 60.	60 to 65.	65 to 70.	70 to 75.	75 to 80.	Over 80.	Not stated.	No. of grooms.
Under 20	135	41	2	1	....	.	..	..	..	..	..	..	..	..	..	179
20 to 25	609	789	114	12	4	..	..	..	..	..	..	..	..	..	2	1,530
25 to 30	213	517	296	70	16	2	3	1	1	..	..	..	..	..	1	1,120
30 to 35	58	154	148	99	23	7	1	..	1	..	..	..	..	..	1	492
35 to 40	22	51	59	51	47	15	3	1	..	..	..	..	..	..	..	249
40 to 45	5	20	40	36	39	23	7	..	..	1	..	..	..	..	1	172
45 to 50	1	3	16	16	28	21	17	2	2	..	..	..	..	..	..	106
50 to 55	2	4	5	12	16	11	16	13	4	1	..	..	..	..	..	84
55 to 60	1	.....	4	4	5	7	9	15	4	2	..	1	..	..	..	52
60 to 65	.....	.....	1	4	2	6	9	9	5	3	1	1	..	..	..	41
65 to 70	.....	.....	1	....	5	5	7	..	1	5	5	..	..	..	..	29
70 to 75	.....	.....	....	....	....	2	..	4	4	4	2	1	..	..	..	17
75 to 80	1	....	....	....	....	..	..	..	1	..	3	..	..	..	..	5
Over 80	.....	.....	....	....	....	..	..	..	..	..	..	2	..	..	..	2
Not stated	.....	.....	....	....	....	..	..	..	..	..	..	..	..	..	12	12
No. of brides.	1,047	1,579	686	305	185	99	72	45	23	16	11	5	..	..	17	4,090

TABLE No. XII.

Instances in which the age of the bride exceeded that of the groom.	Second marriage.		Third marriage.		Fourth marriage.		Fifth marriage.		Sixth marriage.		Divorced.		Number of marriages in which both bride and groom had been divorced.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
600	669	534	80	40	4	2	1	...	...	...	101	123	20

DIVORCES.

TABLE No. XIII.

Divorces decreed by the Supreme Court of New Hampshire, in the year 1893, as returned by the Clerks of the Several Counties.

COUNTIES.	Causes of Divorce.																Libellants.		
	Conviction of crime and imprisonment.	Abandonment.	Abandonment and adultery.	Absent three years.	Adultery.	Desertion.	Extreme cruelty.	Extreme cruelty and willing absence.	Extreme cruelty and habitual drunkenness.	Habitual drunkenness and abandonment.	Habitual drunkenness.	Impotency.	Willing absence and refusal to cohabit.	Treatment injurious to health.	Nullity.	Treatment injurious to health and to reason.	Willing absence three years.	Males.	Females.	Total of each county.
Rockingham	1	14	....	....	13	....	12	....	....	....	2	....	....	....	....	....	...	16	26	42
Strafford	....	16	....	....	8	....	8	....	....	....	7	....	....	....	....	....	....	12	27	39
Belknap	....	9	....	....	7	....	7	....	....	....	2	....	....	....	....	....	....	10	15	25
Carroll	....	6	....	....	3	....	8	....	....	....	1	....	....	1	....	....	1	6	14	20
Merrimack	....	15	....	....	12	....	22	....	....	....	2	....	....	1	....	....	1	21	32	53
Hillsborough	1	38	....	....	25	....	31	....	1	....	4	....	....	2	....	....	6	31	77	108
Cheshire	....	12	....	....	7	....	7	....	....	....	1	....	....	1	....	....	....	9	19	28
Sullivan	1	6	....	....	3	....	4	....	....	....	....	....	....	1	....	....	....	6	9	15
Grafton	....	15	....	....	12	....	7	....	....	....	2	....	....	....	....	....	3	18	21	39
Coös	....	1	....	....	6	....	7	....	....	....	3	....	....	....	....	1	11	3	26	29
Total	3	132	....	....	96	....	113	....	1	....	24	....	....	6	....	1	22	132	266	398

TABLE No. XIV.

Causes upon which Divorces have been decreed for eleven years, 1882 *to* 1893, *inclusive, by Counties.*

COUNTIES.	Abandonment.	Abandonment and adultery.	Absent three years.	Absent three years and abandonment.	Adultery.	Conviction of crime and imprisonment.	Desertion and bigamy.	Extreme cruelty.	Extreme cruelty and abandonment.	Extreme cruelty and adultery.	Extreme cruelty and habitual drunkenness.	Absence of wife from state ten years together.	Desertion.	Extreme cruelty, habitual drunkenness, and adultery.	Habitual drunkenness.	Habitual drunkenness and adultery.	Habitual drunkenness and desertion.	Impotency.	Joining religious sect and refusal to cohabit.	Nullity.	Prior marriage.	Refusal to cohabit.	Treatment injurious to health.	Treatment injurious to health and extreme cruelty.	Treatment injurious to health and to reason.	Treatment injurious to reason.	Willing absence three years.	Willing absence and refusal to cohabit.	No cause assigned.	Total.
Rockingham	168	..	1	....	100	5	..	110	....	..	1	....	..	....	46	....	....	1	....	..	..	..	3	....	....	..	3	....	..	438
Strafford	152	..	14	....	100	1	1	118	....	..	....	....	..	....	39	....	....	1	....	2	..	1	2	....	....	..	2	....	..	433
Belknap	70	..	11	....	81	2	..	85	....	..	....	....	..	....	27	....	....	....	....	....	....	....	1	....	....	..	....	....	..	284
Carroll	75	..	5	....	47	2	..	40	....	..	1	....	2	....	14	....	....	1	....	1	....	....	1	....	....	..	....	....	..	191
Merrimack	159	..	20	....	126	3	..	188	....	..	....	....	..	....	55	....	....	4	....	1	....	....	4	....	....	2	15	....	2	579
Hillsborough	405	4	16	....	217	7	..	327	3	5	14	....	..	2	64	2	2	..	....	....	..	....	12	4	1	..	16	6	..	1,107
Cheshire	137	1	1	3	80	....	..	87	1	3	6	1	..	....	21	....	...	1	....	..	1	..	13	....	2	2	5	....	..	365
Sullivan	62	..	..	....	59	1	..	67	....	..	....	....	..	....	5	....	....	1	1	..	..	..	3	....	....	..	8	....	..	207
Grafton	151	..	..	....	104	3	..	106	....	..	....	....	..	....	23	....	....	1	....	..	..	..	3	....	....	..	3	....	..	394
Coös	37	..	7	1	48	2	..	71	....	..	....	....	..	....	18	....	....	4	....	..	..	..	1	....	1	..	14	....	..	204
Total	1,416	5	75	4	962	26	1	1,199	4	8	22	1	2	2	312	2	2	14	1	4	1	1	43	4	4	4	75	6	2	4,202

TABLE

CAUSES OF DEATH ARRANGED

TOWNS IN ROCKINGHAM COUNTY.	CLASS I.—																								
	ORDER 1.—Miasmatic.																								
	Carbuncle.	Cholera, Asiatic.	Cholera, Sporadic.	Cholera Infantum.	Cholera Morbus.	Croup (Pseudo-membranous).	Diphtheria.	Diarrhœa.	Dysentery.	Erysipelas.	Fever, Bilious.	Fever, Cerebro-spinal.	Fever, Intermittent.	Fever, Malarial.	Fever, Typhoid.	Fever, Typho-malarial.	Fever, Unspecified.	Fever, Yellow.	Influenza (Epidemic).	Measles.	Mumps.	Metria (Puerperal Fever).	Pertussis.		
Atkinson																									
Auburn											1														
Brentwood			2					2		1				1											
Candia																									
Chester									1					1											
Danville			1															1							
Deerfield																		1							
Derry			3	1	1					1															
East Kingston																									
Epping					1				1									1				1			
Exeter			4			1																			
Fremont					1																	1			
Greenland			1																						
Hampstead											1							1							
Hampton																		1							
Hampton Falls																						1			
Kensington																									
Kingston			1		1																				
Londonderry														1											
Newcastle																									
Newington			1				1	1																	
Newmarket			8		5									1											
Newton					1													1							
North Hampton																									
Northwood																	1								
Nottingham			1																			1			
Plaistow			2						1																
Portsmouth			9		1	14	2		1		1				1			2							
Raymond																		1							
Rye																									
Salem			1						2																
Sandown			1						1																
Seabrook			2																						
South Hampton																									
South Newmarket											1														
Stratham																									
Windham														1											
Total			36	2	11	16	5	6	5	1				6		1		9			1	3			

No. XV.

BY TOWNS AND COUNTIES.

ZYMOTIC DISEASES.

| | | |

TABLE No. XV.

TOWNS IN ROCKINGHAM COUNTY.	CLASS II.—CONSTITUTIONAL DISEASES.																										
	ORDER 1.—Diathetic.															ORDER 2.—Tubercular.									Total for Class II.		
	Gout.	Dropsy.	Anæmia.	Cancer, Various.	Cancer of Breast.	Cancer of Stomach.	Cancer of Uterus.	Noma (Canker).	Mortification.	Rheumatism.	Total.					Scrofula.	Tabes Mesenterica.	Phthisis.	Hydrocephalus.	Tubercular Meningitis.	Total.							
											M.	F.									M.	F.					
Atkinson																		1			1			1		1	
Auburn																		1			1			1		1	
Brentwood		1	1	3							1	4						6	1		5	2		6		6	12
Candia		1										1						5			1	4		1		5	6
Chester				1								1						2			2			2		1	3
Danville																		1	1		2			2			2
Deerfield				2			1				1	2						3			2	1		3		3	6
Derry		1	1						1		1	2	1					8			5	4		6		6	12
East Kingston																		2			2			2		2	
Epping		1		1							2							5			2	3		4		3	7
Exeter		1		1		2					3	1						11	1	1	6	7		9		8	17
Fremont				1								1						1				1				2	2
Greenland					1							1														1	1
Hampstead																		2				2		2		2	2
Hampton				1								1						2				2		3		3	3
Hampton Falls				1					1		2													2			2
Kensington																		2			1	1		1		1	2
Kingston				1							1							2				2		1		2	3
Londonderry				2							1	1						3				3		1		4	5
Newcastle				1								1						2			1	1		1		2	3
Newington																											
Newmarket		2								1	1	2						13			8	5		9		7	16
Newton																		2		1	3			3			3
North Hampton				1								1														1	1
Northwood				3							2	1						1				1		2		2	4
Nottingham				1		1					1	1						3			3			4		1	5
Plaistow				2	1						2	1						2			1	1		3		2	5
Portsmouth		1	1	7	2	1			2		2	12						24	2		19	7		21		19	40
Raymond		1										1	1					1				2				3	3
Rye		1			1							2						1				1				3	3
Salem			1	1								2						2				2		4		4	4
Sandown																		1				1				1	1
Seabrook				1								1						1	1			2		3		3	3
South Hampton				1							1													1			1
South Newmarket		1										1						1		1	1	1		2		3	3
Stratham																		1				1		1		1	1
Windham			1									1						1				1		2		2	2
Total		11	5	32	5	4	1		4	1	21	42	2			113	6	3	66	58	87	100	187				

—*Continued.*

CLASS III.—LOCAL DISEASES.

Order 1.—Nervous System.													Order 2.—Circulatory System.					Order 3.—Respiratory System.										
Cephalitis.	Cerebritis.	Apoplexy.	Paralysis.	Insanity.	Chorea.	Epilepsy.	Tetanus.	Convulsions.	Brain diseases.	Total.			Pericarditis.	Aneurism.	Heart Disease.	Total.		Epistaxis.	Laryngitis.	Bronchitis, Acute.	Bronchitis, Chronic.	Pleurisy.	Pneumonia.	Asthma.	Lung Diseases.	Total.	
										M.	F.				M.	F.									M.	F.	
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	1	..	..	..	1
..	..	..	1	..	..	..	..	1	1	2	1	..	..	..	2	2	..	..	..	..	..	..	1	..	..	..	1
2	1	..	3	..	..	..	..	..	..	6	..	..	..	..	1	..	1	..	..	1	..	..	..	..	..	..	1
..	..	1	1	..	..	..	..	..	1	2	1	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..
..	..	..	2	..	..	..	..	..	..	..	2	..	..	..	2	1	1	..	..	..	..	..	..	..	..	..	..
3	..	..	2	..	..	..	..	..	..	2	3	..	..	..	1	1	..	..	..	..	..	..	1	..	..	..	1
..	..	4	2	..	..	..	..	..	1	1	6	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..
..	..	3	3	..	..	..	..	..	1	6	1	..	..	..	3	2	1	..	..	..	..	..	2	..	1	1
..	..	2	..	..	..	..	..	..	..	1	1	..	..	..	1	1	..	..	..	..	..	..	3	..	2	1
..	..	1	4	..	..	..	..	..	..	4	1	..	..	..	5	3	2	..	..	1	..	..	5	..	3	3
3	..	7	2	..	..	..	..	..	2	6	8	..	..	..	13	7	6	..	1	5	..	..	14	..	7	13
..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	2	1	1	..	..	..	..	..	..	..	..	..
..	..	1	1	..	..	..	..	..	..	1	1	..	..	..	1	..	1	..	..	2	..	..	1	..	1	2
..	..	1	..	..	..	..	..	..	2	3	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	..	..	..	..	1	1	..	1	1
..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	1	2
1	..	1	..	..	..	..	..	..	..	1	1	..	..	..	5	3	2	..	..	..	..	..	..	..	..	..
..	..	1	2	..	..	..	..	..	..	2	1	..	..	..	6	2	4	..	..	1	..	..	3	..	2	2
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	1	..	..	..	..	..	1	..	1	..
..	1	..	1	..	..	..	..	..	1	1	2	..	..	..	3	..	3	..	..	1	..	..	7	1	5	4
..	2	2	..	..	..	..	..	..	..	1	3	..	..	..	2	1	1	..	..	..	..	..	1	..	..	1
..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..
..	..	1	1	..	..	..	..	..	1	..	3	..	..	..	5	1	4	..	..	2	..	..	3	..	4	1
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	1	..	..	..	1	..	2
..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	4	2	2	..	..	..	..	..	3	..	..	3
6	..	11	5	..	..	1	..	3	3	17	12	..	1		23	14	10	..	1	7	..	..	23	..	17	14
..	..	1	1	..	..	..	..	..	1	1	2	..	..		1	1	..	..	..	1	..	1	3	..	5	2
..	..	..	..	..	..	1	..	..	..	..	1	..	..		2	1	1	..	..	..	..	..	2	..	2	..
1	..	3	..	1	..	1	..	..	2	5	3	..	..		6	4	2	..	..	..	..	..	2	1	1	2
..	..	..	..	..	..	..	..	..	1	..	1	..	..		2	2	..	..	..	..	..	..	1	..	..	1
4	1	..	3	..	..	1	..	..	..	3	6	..	..		4	2	2	..	..	..	..	..	1	..	..	1
..	..	..	1	..	..	..	..	..	..	1	..	..	..		..	..	..	..	..	1	..	..	3	..	3	1
1	..	..	1	..	..	..	..	..	..	..	2	..	..		2	..	2	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..		3	3	..	..	..	1	..	..	..	..	..	1
.	..	..	1	..	..	..	..	..	..	..	1	..	..		3	2	1	..	..	3	..	..	1	..	1	3
21	6	40	39	1	..	4	..	4	18	68	65	..	1		112	62	51	..	2	27	..	2	88	2	3	58	66

TABLE No. XV.

CLASS III.—LOCAL

ORDER 4.—Digestive Organs.

TOWNS IN ROCKINGHAM COUNTY.	Gastritis.	Enteritis.	Peritonitis.	Ascites.	Ulceration of Intestines.	Hernia.	Ileus.	Intussusception.	Stricture of Intestines.	Fistula.	Stomach Diseases.	Pancreas Diseases.	Hepatitis.	Jaundice.	Liver Diseases.	Spleen Diseases.	Bowel Diseases.	Total.	
																		M.	F.
Atkinson	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Auburn	..	....	....	....	..	..	..	..	..	..	..	..	....	....	1	..	....	....	1
Brentwood	..	....	1	....	..	..	..	..	..	..	..	..	....	....	....	..	....	1	....
Candia	2	1	....	....	..	..	..	..	..	..	..	..	....	....	1	..	1	3	2
Chester	..	1	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	1
Danville	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Deerfield	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Derry	1	2	....	....	..	..	..	..	..	..	..	..	....	....	1	..	....	2	2
East Kingston	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Epping	..	....	1	....	..	..	..	..	..	..	1	..	....	....	....	..	1	1	2
Exeter	1	....	....	....	..	1	..	..	..	..	1	..	....	....	....	..	1	1	3
Fremont	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Greenland	1	1	....	....	..	..	..	..	..	1	..	..	....	....	....	..	....	3	....
Hampstead	..	....	1	....	..	1	..	..	..	..	..	..	....	....	....	..	....	....	2
Hampton	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Hampton Falls	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Kensington	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Kingston	1	....	1	....	..	..	..	..	..	..	..	..	....	....	....	..	....	2	....
Londonderry	..	....	....	....	..	..	..	..	..	..	..	..	....	....	2	..	....	....	2
Newcastle	..	....	1	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	1
Newington	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Newmarket	..	1	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	1
Newton	1	....	....	....	..	..	..	..	..	..	..	..	....	....	1	..	....	....	2
North Hampton	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Northwood	..	....	1	....	..	..	..	..	..	..	..	..	....	....	....	..	....	1	....
Nottingham	..	1	....	....	..	..	..	..	..	..	..	..	....	1	....	..	....	1	1
Plaistow	..	....	....	....	..	..	..	..	..	..	1	..	....	....	....	..	....	1	....
Portsmouth	1	3	2	....	..	1	..	..	1	..	1	..	2	....	1	..	1	7	6
Raymond	..	2	....	....	..	..	..	..	..	..	1	..	....	....	1	..	....	3	1
Rye	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Salem	2	....	1	....	..	..	1	..	..	..	..	..	....	....	....	..	....	2	2
Sandown	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Seabrook	..	....	....	....	..	..	..	..	..	..	1	..	....	1	....	..	3	3	2
South Hampton	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
South Newmarket	..	....	....	....	..	..	..	..	..	..	..	..	1	....	....	..	....	....	1
Stratham	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Windham	..	1	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	1	....
Total	10	13	9	....	1	3	..	1	1	6	..	3	2	8	..	7	32	32	

—*Continued.*

DISEASES.—*Continued.*

Order 5.—Urinary Organs.												Order 6.—Generative Organs.			Order 7.—Osseous and Locomotory System.				Order 8.—Integumentary System.				Total for Class III.			
Nephritis.	Ischuria.	Nephria (Bright's Disease).	Diabetes.	Calculus (Gravel, etc.).	Cystitis.	Prostate, Disease of.	Kidney Diseases.	Bladder, Diseases of.	Testicles, Disease of.	Total.		Ovarian Dropsy.	Disease of Uterus.	Total.	Bone, Diseases of.	Joint Diseases.	Vertebræ, Diseases of.	Total.	Phlegmon.	Ulcer.	Skin Diseases.	Total.		Male.	Female.	Sex not stated.	Total.
										M.	F.							M.	F.			M.	F.				
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	2
1	..	..	..	..	..	..	..	1	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	4	5	..	9
..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	7	3	..	10
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	3	..	9
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	4	..	5
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	4	..	7
..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	2	7	..	9
..	..	1	..	..	..	1	..	2	..	2	2	..	..	..	..	..	..	..	..	..	..	..	..	13	7	..	20
..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	5	2	..	7
..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	11	9	..	20
..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	21	31	..	52
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	3
..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	5	5	..	10
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	3	..	6
..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	3	2	..	5
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	2
..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	4
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	3	..	9
..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	7	9	..	16
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	3
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	10	..	16
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	7	..	9
..	..	2	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	3	1	..	4
..	..	1	..	..	..	1	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	8	8	..	16
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	1	5	..	6
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	5	..	9
2	..	3	..	..	..	..	1	..	..	6	..	1	..	1	..	..	..	..	..	..	..	..	..	61	43	..	104
..	..	1	..	..	..	1	..	..	..	1	1	1	..	1	..	..	..	..	..	..	..	..	..	11	7	..	18
..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	1	4	3	..	7
..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	12	10	..	22
..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	3	2	..	5
..	..	2	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	9	12	..	21
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	1	..	5
..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	5	..	6
..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	1	4	2	..	6
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	5	..	9
3	..	16	..	..	4	4	7	..	..	20	14	2	..	2	..	..	..	..	..	3	..	..	3	240	233	..	473

TABLE No. XV.

CLASS IV.—DEVELOPMENTAL DISEASES.

TOWNS IN ROCKINGHAM COUNTY.	Order 1.—Of Children.										Order 2.—Of Women.			Orders 3 and 4.				Total for Class IV.		
	Still-born.	Debility, Infantile.	Premature Birth.	Cyanosis.	Spina Bifida.	Other Malformations.	Teething.	Innutrition.	Total.		Childbirth.	Paramenia.	Total.	Old Age.		Atrophy and Debility.		Male.	Female.	Total.
									M.	F.				M.	F.	M.	F.			
Atkinson	..	1	..	..	..	..	..	..	1	..	..	..	..	....	....	1	..	2	....	2
Auburn	1	..	..	..	..	..	..	..	..	1	..	..	..	....	....	....	....	....	1	1
Brentwood	1	..	4	..	..	..	..	..	4	1	..	..	..	....	2	4	1	8	4	12
Candia	1	..	..	..	..	..	..	..	..	1	..	..	..	3	1	1	..	4	2	6
Chester	1	..	..	..	..	..	..	..	1	..	..	..	..	1	2	..	..	2	2	4
Danville	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	....	....	....	....	....
Deerfield	..	..	1	..	..	1	..	..	2	..	..	..	..	1	....	..	1	3	1	4
Derry	3	..	..	..	..	..	..	1	3	1	1	..	1	2	4	..	1	5	7	12
East Kingston	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	....	....	....	....	....
Epping	7	..	1	2	..	..	..	3	6	7	..	..	..	....	....	1	..	7	7	14
Exeter	1	..	..	..	..	..	..	..	1	..	..	..	..	3	4	..	..	4	4	8
Fremont	..	..	..	..	..	..	..	..	..	..	..	..	..	....	1	..	..	....	1	1
Greenland	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	1	..	1	....	1
Hampstead	..	..	..	..	..	..	..	..	..	..	..	..	..	....	1	..	..	....	1	1
Hampton	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	..	..	....	....	....
Hampton Falls	..	..	..	..	..	..	..	..	..	..	..	..	..	....	1	..	..	....	1	1
Kensington	..	..	..	..	..	..	..	..	..	..	..	..	..	....	1	..	..	....	1	1
Kingston	..	..	..	..	..	..	..	1	1	..	..	..	..	....	1	1	3	2	4	6
Londonderry	..	..	..	..	..	..	..	..	..	..	..	..	..	3	1	..	..	3	1	4
Newcastle	..	..	..	..	..	..	..	..	..	..	..	..	..	....	1	..	1	....	2	2
Newington	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	....	....	....	....	....
Newmarket	2	..	..	..	..	..	..	..	2	..	..	..	..	1	1	..	..	3	1	4
Newton	..	..	..	..	..	..	..	1	1	..	..	..	..	....	....	2	..	3	....	3
North Hampton	..	..	..	..	..	..	..	..	..	..	..	..	..	....	1	..	..	....	1	1
Northwood	..	..	..	..	..	..	..	..	..	..	..	..	..	....	1	2	..	2	1	3
Nottingham	1	..	..	..	..	..	..	..	..	1	..	..	..	....	....	....	....	....	1	1
Plaistow	..	..	..	..	..	..	..	..	..	..	1	..	1	....	1	..	..	....	2	2
Portsmouth	8	..	4	..	1	1	..	6	12	8	..	..	..	5	11	2	2	19	21	40
Raymond	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	1	1	2
Rye	1	..	..	..	..	..	..	..	1	..	1	..	1	....	1	1	..	2	2	4
Salem	1	..	..	..	..	..	..	1	....	2	..	..	..	2	....	..	..	2	2	4
Sandown	..	..	..	..	..	..	..	..	..	..	..	..	..	....	1	..	..	....	1	1
Seabrook	..	..	..	..	..	1	..	1	1	1	1	..	1	....	....	..	..	1	2	3
South Hampton	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	..	..	....	..	....
So. Newmarket	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	..	2	1	3
Stratham	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	..	..	....	....	....
Windham	..	..	..	..	..	..	..	..	..	..	..	..	..	....	2	..	..	....	2	2
Total	28	1	10	2	1	3	..	14	36	23	4	..	4	24	41	16	9	76	77	153

—*Continued.*

CLASS V.—VIOLENT DEATHS.																																	Grand Total for all Classes.
Order 1.—Accident and Negligence.										Order 2.		Order 3.—Suicide.										Order 4.—Various.				Total for Class V.							
Fractures and Contusions.	Wounds, Unspecified.	Burns and Scalds.	Poison.	Drowning.	Suffocation.	Various.	Total.			Homicide.		Wounds, Unspecified.	Wounds, Pistol or Gunshot.	Wounds, Knife.	Poison.	Drowning.	Hanging.	Otherwise.	Total.			Violent, not Classed.		Cause not Reported or Unclassified.		Male.	Female.	Total.							
							M.	F.		M.	F.								M.	F.		M.	F.	M.	F.										
..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	3	2	..	5
..	....	....	....	3	....	....	3	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	3	....	3	9	6	..	15
..	....	....	....	....	....	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	1	3	1	4	28	17	..	45
..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	..	1	....	....	....	....	....	....	1	....	1	12	11	..	23
..	....	....	....	....	....	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	2	....	2	7	8	..	15
..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	1	1	6	7	..	13
..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	1	....	....	....	....	2	2	2	2	4	9	13	2	24
..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	2	3	3	3	6	29	26	1	56
..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	....	2	....	2	9	2	..	11
..	....	1	..	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	26	20	..	46
..	....	....	....	....	....	3	3	....	....	....	....	....	....	....	....	....	....	1	1	....	....	....	....	3	7	7	7	14	47	52	..	99
..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	6	..	8
..	....	....	....	....	....	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	....	3	....	3	10	6	..	16
..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	3	8	..	11
..	....	....	....	....	....	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	2	....	2	6	5	..	11
..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	3	3	..	6
..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	3	4	..	7
..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	....	....	....	....	....	....	1	....	1	12	10	..	22
..	....	....	....	....	....	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	3	1	4	1	5	17	15	..	32
..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	1	1	2	6	..	8
..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	4	2	..	6
..	....	....	....	....	....	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	5	2	5	7	30	29	..	59
..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	8	9	..	17
..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	5	4	..	9
..	....	2	..	....	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	2	12	15	..	27
..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	3	1	3	1	4	8	10	..	18
..	....	....	....	....	....	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	2	1	3	10	12	..	22
5	..	1	1	2	..	1	6	4	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	3	7	9	11	20	130	107	1	238
..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	1	....	1	13	12	..	25
..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	1	....	....	....	....	2	....	3	3	6	11	..	17
..	....	....	....	....	....	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	1	17	19	..	36
..	1	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	1	....	2	5	6	..	11
..	....	....	1	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	....	3	....	3	15	18	..	33
..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	5	1	..	6
1	..	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	1	2	6	9	..	15
..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	4	3	..	7
..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	4	10	..	14
6	1	4	2	5	..	12	23	7	....	....	....	....	....	....	1	..	2	2	4	1	....	....	....	29	34	56	42	98	525	504	4	1,033

TABLE No. XV.

CLASS I.

ORDER 1.—Miasmatic.

TOWNS IN STRAFFORD COUNTY.	Carbuncle.	Cholera, Asiatic.	Cholera, Sporadic.	Cholera Infantum.	Cholera Morbus.	Croup (Pseudo-membranous).	Diphtheria.	Diarrhœa.	Dysentery.	Erysipelas.	Fever, Bilious.	Fever, Cerebro-spinal.	Fever, Intermittent.	Fever, Malarial.	Fever, Typhoid.	Fever, Typho-malarial.	Fever, Unspecified.	Fever, Yellow.	Influenza (Epidemic).	Measles.	Mumps.	Metria (Puerperal Fever).	Pertussis.
Barrington															1		2						
Dover	1			16	3	3	2	1	2						5				2				
Durham																							
Farmington							1			1													
Lee																							
Madbury							1																
Middleton																							
Milton									2	1													
New Durham																							
Rochester				6	1	1	4		1						3							1	
Rollinsford				1											1								1
Somersworth				16			1	1	1						7								
Strafford															1								
Total	1			39	4	4	9	2	6	2					18		2		2			1	1

—*Continued.*

ZYMOTIC DISEASES.

						Order 2—Enthetic.								Order 3.—Dietic.					Order 4.—Parasitic.					Total for Class I.			
Tonsilitis.	Scarlatina.	Small-pox.	Varicella.	Total.		Glanders.	Gonorrhea.	Hydrophobia.	Malignant Pustule.	Septicæmia.	Syphilis.	Total.		Alcoholism.	Delirium Tremens.	Inanition.	Purpura and Scurvy.	Total.	Aphthæ.	Worms.	Other Parasites.	Total.		Male.	Female.	Sex not stated.	Total.
				M.	F.							M.	F.				M.	F.				M.	F.				
..	..	..	..	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	3
..	..	..	..	15	20	..	..	..	..	..	..	..	..	2	..	..	1	1	..	..	..	..	..	16	21	..	37
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.....
..	1	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	3
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.....
..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.....
..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	3
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.....
..	..	..	..	10	7	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	11	7	..	18
..	4	..	..	6	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	1	..	7
..	..	..	..	7	19	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7	19	..	26
..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
..	5	..	..	42	54	..	..	..	..	..	..	..	..	3	..	..	2	1	..	..	..	..	..	44	55	..	99

TABLE No. XV.

TOWNS IN STRAFFORD COUNTY.	CLASS II.—CONSTITUTIONAL DISEASES.																								
	ORDER 1.—Diathetic.													ORDER 2.—Tubercular.								Total for Class II.		
	Gout.	Dropsy.	Anæmia.	Cancer, Various.	Cancer of Breast.	Cancer of Stomach.	Cancer of Uterus.	Noma (Canker).	Mortification.	Rheumatism.	Total.			Scrofula.	Tabes Mesenterica.	Phthisis.	Hydrocephalus.	Tubercular Meningitis.	Total.		Male.	Female.	Total.
											M.	F.							M.	F.					
Barrington	..	..	..	1	..	..	..	..	..	..	1	...		..	..	1	..	..	1	...	2	....	2			
Dover	..	1	2	10	..	1	..	..	..	5	6	13		1	..	43	1	2	23	24	29	37	66		
Durham	..	..	..	1	..	1	..	..	..	..	..	2		..	..	2	..	..	...	2	...	4	4		
Farmington	..	2	1	...	..	..	..	..	..	..	1	2		..	..	6	..	..	3	3	4	5	9		
Lee	..	..	..	1	..	1	..	..	..	..	1	1		..	..	...	..	..	...	...	1	1	2		
Madbury	..	..	..	..	..	..	..	..	..	..	..	..		..	..	1	..	..	..	1	...	1	1		
Middleton	..	1	..	...	..	..	..	..	..	..	1	...		..	..	...	..	..	...	...	1	....	1		
Milton	..	..	..	...	..	1	..	..	..	..	...	1		..	..	2	..	..	2	...	2	1	3		
New Durham	..	..	..	...	..	..	..	..	..	..	..	..		..	..	..	..	..	..	..	..	....	.....		
Rochester	..	..	1	3	1	2	..	..	..	..	4	3		..	..	6	2	..	6	2	10	5	15		
Rollinsford	..	1	..	1	..	..	..	..	..	..	1	1		..	..	2	1	..	2	1	3	2	5		
Somersworth	..	1	..	...	..	..	..	..	..	..	...	1		..	..	14	..	1	6	9	6	10	16		
Strafford	..	..	..	..	..	..	..	..	..	..	..	..		..	..	1	..	..	1	...	1	....	1		
Total	..	6	4	17	1	6	..	..	..	5	15	24		1	..	78	4	3	44	42	59	66	125		

—*Continued.*

CLASS III.—LOCAL DISEASES.

Order 1.—Nervous System.													Order 2.—Circulatory System.					Order 3.—Respiratory System.										
Cephalitis.	Cerebritis.	Apoplexy.	Paralysis.	Insanity.	Chorea.	Epilepsy.	Tetanus.	Convulsions.	Brain Diseases.	Total.			Pericarditis.	Aneurism.	Heart Diseases.	Total.		Epistaxis.	Laryngitis.	Bronchitis, Acute.	Bronchitis, Chronic.	Pleurisy.	Pneumonia.	Asthma.	Lung Diseases.	Total.	
										M.	F.				M.	F.									M.	F.
..	..	1	..	..	..	..	..	..	1	2	....	..	..	3	2	1	..	..	1	..	....	4	..	..	3	2
13	4	9	8	1	..	..	..	3	2	23	17	..	..	27	14	13	..	1	6	1	....	25	..	1	12	22
..	..	..	..	..	..	..	..	..	..	....	....	..	..	1	....	1	..	..	..	..	....	....	..	1	1	....
1	..	3	..	..	..	..	..	..	1	2	3	..	..	2	1	1	..	..	1	..	....	5	..	..	2	4
..	..	..	2	..	..	..	..	..	..	2	....	..	..	1	1	....	..	..	..	..	....	1	..	..	1	....
..	..	..	..	..	..	..	..	..	..	....	....	..	..	....	....	....	..	..	..	..	....	1	..	..	1	....
..	..	..	..	..	..	..	..	..	..	....	....	..	..	....	....	....	..	..	..	..	....	....	..	..	....	....
..	1	1	1	..	..	..	..	..	..	2	1	..	..	1	1	....	..	..	1	..	....	3	..	..	2	2
..	..	..	1	..	..	..	..	..	..	....	1	..	..	1	....	1	..	..	..	..	....	....	..	..	....	....
1	1	4	5	..	..	..	..	1	1	6	7	1	..	7	3	5	..	..	3	..	....	12	1	..	8	8
.	..	1	1	..	..	..	..	..	..	1	1	..	..	3	2	1	..	..	1	..	....	2	..	..	2	1
3	2	4	2	..	..	..	..	..	3	7	7	..	..	11	5	6	..	2	1	..	....	9	2	..	4	10
1	1	1	..	..	..	..	..	1	1	1	4	..	..	1	1	....	..	..	..	..	....	3	..	..	2	1
19	9	24	20	1	..	..	..	5	9	46	41	1	..	58	30	29	..	3	14	1	....	65	3	2	38	50

TABLE No. XV.

CLASS III.—LOCAL

ORDER 4.—Digestive Organs.

TOWNS IN STRAFFORD COUNTY.	Gastritis.	Enteritis.	Peritonitis.	Ascites.	Ulceration of Intestines.	Hernia.	Ileus.	Intussusception.	Stricture of Intestines.	Fistula.	Stomach Diseases.	Pancreas Diseases.	Hepatitis.	Jaundice.	Liver Diseases.	Spleen Diseases.	Bowel Diseases.	Total. M.	Total. F.
Barrington	..	1	1	....	..	..	..	..	..	..	..	..	....	....	....	..	....	2	....
Dover	1	2	7	....	..	2	..	..	1	..	1	..	....	....	5	..	...	8	11
Durham	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Farmington	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Lee	..	....	....	....	..	..	..	..	..	..	..	..	1	....	....	..	....	....	1
Madbury	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Middleton	..	....	1	....	..	..	..	..	..	..	..	..	....	....	....	..	....	1	....
Milton	..	2	....	....	..	..	..	..	..	..	1	..	....	....	1	..	....	3	1
New Durham	..	....	....	....	..	..	..	..	..	..	..	..	1	....	1	..	....	2	....
Rochester	2	....	....	2	..	..	..	1	..	..	..	..	....	2	1	..	....	2	6
Rollinsford	..	....	....	....	..	..	..	1	..	..	..	..	....	....	....	..	....	1	....
Somersworth	..	2	1	1	..	1	..	..	..	..	1	..	1	....	....	..	....	4	3
Strafford	..	...	....	1	..	..	..	..	..	..	..	..	....	....	....	..	1	1	1
Total	3	7	10	4	..	3	..	2	1	..	3	..	3	2	8	..	1	24	23

—*Continued.*

DISEASES.—*Continued.*

Order 5.—Urinary Organs.												Order 6.—Generative Organs.			Order 7.—Osseous and Locomotory System.						Order 8.—Integumentary System.						Total for Class III.			
Nephritis.	Ischuria.	Nephria (Bright's Disease).	Diabetes.	Calculus (Gravel, etc.)	Cystitis.	Prostate, Disease of.	Kidney Diseases.	Bladder, Diseases of.	Testicles, Disease of.	Total.		Ovarian Dropsy.	Disease of Uterus.	Total.	Bones, Diseases of.	Joint Diseases.	Vertebræ, Diseases of.	Total.			Phlegmon.	Ulcer.	Skin Diseases.	Total.			Male.	Female.	Sex not stated.	Total.
										M.	F.							M.	F.					M.	F.					
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9	3	..	12
2	..	11	1	..	..	..	..	1	..	7	8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	64	71	..	135
..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	3
..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	8	..	14
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	1	..	5
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	4	..	12
..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	3	..	5
..	..	..	..	..	..	1	1	..	..	1	1	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	20	28	..	48
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	3	..	9
1	..	2	..	..	1	..	..	..	..	1	3	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	21	30	..	51
..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	5	7	..	12
3	..	14	1	..	1	1	3	..	..	10	13	3	..	3	..	..	..	..	..	..	1	..	..	..	1	..	148	160	..	308

TABLE No. XV.

TOWNS IN STRAFFORD COUNTY.	CLASS IV.—DEVELOPMENTAL DISEASES.																			
	Order 1.—Of Children.									Order 2.—Of Women.			Orders 3 and 4.				Total for Class IV.			
	Still-born.	Debility, Infantile.	Premature Birth.	Cyanosis.	Spina Bifida.	Other Malformations.	Teething.	Innutrition.	Total.				Old Age.		Atrophy and Debility.					
									M.	F.	Childbirth.	Paramenia.	Total.	M.	F.	M.	F.	Male.	Female.	Total.
Barrington	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	..	2	1	3
Dover	4	1	5	..	..	..	..	6	7	9	1	..	1	2	10	2	1	11	21	32
Durham	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	..	1	2	3
Farmington	2	..	..	..	..	..	..	..	2	..	..	..	..	5	1	..	..	7	1	8
Lee	..	1	..	..	..	..	..	..	1	..	1	..	1	..	2	..	..	1	3	4
Madbury	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Middleton	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1
Milton	..	..	1	..	..	..	..	..	1	..	..	..	..	..	1	..	..	1	1	2
New Durham	..	..	1	..	..	..	1	..	1	1	..	..	..	..	1	..	..	1	2	3
Rochester	..	6	..	..	..	2	..	1	5	4	1	..	1	1	6	..	..	6	11	17
Rollinsford	..	2	..	..	..	..	..	..	2	..	..	..	..	..	1	..	..	2	1	3
Somersworth	2	1	3	1	..	..	..	..	3	4	..	..	..	..	1	1	..	4	5	9
Strafford	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	1
Total	8	11	10	1	..	2	1	7	22	18	3	..	3	12	27	3	1	37	49	86

—*Continued.*

CLASS V.—VIOLENT DEATHS.																												Grand Total for all Classes.
Order 1.—Accident and Negligence.									Order 2.		Order 3.—Suicide.										Order 4.—Various.				Total for Class V.				
Fractures and Contusions.	Wounds, Unspecified.	Burns and Scalds.	Poison.	Drowning.	Suffocation.	Various.	Total.		Homicide.		Wounds, Unspecified.	Wounds, Pistol or Gunshot.	Wounds, Knife.	Poison.	Drowning.	Hanging.	Otherwise.	Total.		Violent, not Classed.		Cause not Reported or Unclassified.		Male.	Female.	Total.	Males.	Females.	Not stated.	Total.
							M.	F.	M.	F.								M.	F.	M.	F.	M.	F.							
1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	2	3	16	7	..	23
1	2	*42	1	2	..	4	19	33	..	..	..	..	..	1	..	..	1	..	..	..	..	5	2	25	35	70	145	185	..	330
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	8	..	10
..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	3	3	3	6	20	20	..	40
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	1	7	5	..	12
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	1	2	2	..	4
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	3
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	..	..	1	..	3	..	3	14	9	..	23
..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	4	5	..	9
1	2	1	1	1	1	2	8	1	..	..	..	..	..	1	..	..	1	2	..	..	..	2	2	12	3	15	59	54	..	113
1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	5	5	5	10	22	12	..	34
2	1	1	..	..	..	1	4	1	..	..	..	..	..	..	..	..	..	..	..	..	..	8	10	12	11	23	50	75	..	125
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	1	8	7	1	16
6	5	45	2	3	1	8	35	35	..	..	..	..	..	2	..	..	3	5	..	..	..	24	25	64	60	124	351	390	1	742

* Burned at the county alms-house.

TABLE

CLASS I.—

ORDER 1.—Miasmatic.

TOWNS IN BELKNAP COUNTY.	Carbuncle.	Cholera, Asiatic.	Cholera, Sporadic.	Cholera Infantum.	Cholera, Morbus.	Croup. (Pseudo-membranous).	Diphtheria.	Diarrhœa.	Dysentery.	Erysipelas.	Fever, Bilious.	Fever, Cerebro-spinal.	Fever, Intermittent.	Fever, Malarial.	Fever, Typhoid.	Fever, Typho-malarial.	Fever, Unspecified.	Fever, Yellow.	Influenza (Epidemic).	Measles.	Mumps.	Metria (Puerperal Fever).	Pertussis.
Alton									1														
Barnstead																							
Belmont				4															1				
Center Harbor				1					1										1				
Gilford																							
Gilmanton																							1
Laconia				16		1	5	1		1					4				2	5			
Meredith																							
New Hampton							1			1									2	1			
Sanbornton				1																			
Tilton				3	1														1	1			
Total				25	1	1	6	1	2	2					4				7	7			1

No. XV.—*Continued.*

ZYMOTIC DISEASES.

| | | |

TABLE No. XV.

TOWNS IN BELKNAP COUNTY.	CLASS II.—CONSTITUTIONAL DISEASES.																								
	ORDER 1.—Diathetic.													ORDER 2.—Tubercular.								Total for Class II.		
	Gout.	Dropsy.	Anæmia.	Cancer, Various.	Cancer of Breast.	Cancer of Stomach.	Cancer of Uterus.	Noma (Canker).	Mortification.	Rheumatism.	Total.			Scrofula.	Tabes Mesenterica.	Phthisis.	Hydrocephalus.	Tubercular Meningitis.	Total.		Male.	Female.	Total.
											M.	F.							M.	F.			
Alton	..	..	..	2	..	..	..	..	..	..	1	1	..	..	5	..	..	5	..	6	1	7
Barnstead	..	..	..	1	..	..	..	..	..	..	1	..	..	..	3	..	..	..	3	..	4	4
Belmont	..	1	..	..	..	..	..	..	..	..	1	..	..	..	2	..	..	..	2	..	3	3
Center Harbor	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	1
Gilford	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	1	1
Gilmanton	..	..	..	3	..	..	..	..	..	..	2	1	..	..	4	..	..	1	3	3	4	7
Laconia	..	1	2	3	..	2	1	..	2	..	5	6	1	3	20	..	2	9	17	14	23	37
Meredith	..	1	..	1	..	..	..	..	1	..	1	2	..	..	4	..	..	1	3	2	5	7
New Hampton	..	1	..	1	..	..	..	..	..	..	1	1	..	..	1	..	..	..	1	1	2	3
Sanbornton	..	..	..	1	..	..	..	..	..	..	..	1	..	..	2	..	..	..	2	..	3	3
Tilton	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..	..	2	3	2	3	5
Total	..	4	2	12	..	3	1	..	3	..	11	14	1	3	47	..	2	18	35	29	49	78

—*Continued.*

CLASS III.—LOCAL DISEASES.

Order 1.—Nervous System.												Order 2.—Circulatory System.					Order 3.—Respiratory System.										
Cephalitis.	Cerebritis.	Apoplexy.	Paralysis.	Insanity.	Chorea.	Epilepsy.	Tetanus.	Convulsions.	Brain diseases.	Total.		Pericarditis.	Aneurism.	Heart Disease.	Total.		Epistaxis.	Laryngitis.	Bronchitis, Acute.	Bronchitis, Chronic.	Pleurisy.	Pneumonia.	Asthma.	Lung Diseases.	Total.	
										M.	F.				M.	F.									M.	F.
..	..	1	6	..	..	..	..	..	..	1	6	..	..	1	1	....	..	..	1	..	..	2	..	..	2	1
..	..	1	..	..	..	..	..	1	1	2	1	..	..	4	1	3	..	..	....	..	..	3	..	..	3	....
1	..	..	2	..	..	..	..	..	..	....	3	..	..	3	2	1	..	..	....	..	..	1	..	..	1	....
..	..	..	..	..	..	..	..	..	..	....	....	..	..	....	....	....	..	..	....	..	..	1	..	..	1	....
..	..	1	..	..	..	..	..	..	..	1	....	..	..	1	1	....	..	..	....	..	..	....	..	..	....	....
..	..	2	..	..	..	1	..	..	..	3	....	..	..	3	1	2	..	..	1	..	..	1	..	1	1	2
7	..	3	9	..	..	..	..	3	2	10	14	..	..	5	4	1	..	..	2	..	..	14	1	..	5	12
1	..	3	2	..	..	..	1	..	..	3	4	..	..	2	1	1	..	..	1	..	..	1	..	..	....	2
..	..	..	3	..	..	..	..	..	1	2	2	..	..	....	....	....	..	..	....	1	..	1	..	..	....	2
..	..	1	..	..	..	..	..	..	..	1	....	1	..	1	1	1	..	..	....	1	..	4	..	..	1	4
1	..	..	2	..	..	..	..	..	..	3	....	..	..	3	2	1	..	..	....	..	..	3	..	..	3	....
10	..	12	24	..	..	1	..	5	4	26	30	1	..	23	14	10	..	..	5	2	..	31	1	1	17	23

TABLE No. XV.

CLASS III.—LOCAL

ORDER 4.—Digestive Organs.

TOWNS IN BELKNAP COUNTY.	Gastritis.	Enteritis.	Peritonitis.	Ascites.	Ulceration of Intestines.	Hernia.	Ileus.	Intussusception.	Stricture of Intestines.	Fistula.	Stomach Diseases.	Pancreas Diseases.	Hepatitis.	Jaundice.	Liver Diseases.	Spleen Diseases.	Bowel Diseases.	Total. M.	Total. F.
Alton	..	....	1	....	..	..	..	..	..	..	..	..	1	....	....	..	....	1	1
Barnstead	..	....	....	....	..	..	..	..	..	..	..	..	....	....	2	..	....	1	1
Belmont	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Center Harbor	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Gilford	..	....	....	....	..	..	..	..	..	..	..	..	....	1	....	..	....	....	1
Gilmanton	..	....	....	....	..	..	..	..	..	..	..	..	....	....	1	..	....	....	1
Laconia	1	1	2	....	..	..	..	..	..	..	1	..	....	....	....	..	....	4	1
Meredith	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
New Hampton	1	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	1
Sanbornton	..	....	1	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	1
Tilton	..	....	....	....	..	..	..	..	..	..	2	..	....	....	1	..	....	....	3
Total	2	1	4	....	..	..	..	..	..	..	3	..	1	1	4	..	....	6	10

—*Continued.*

DISEASES.—*Continued.*

Order 5.—Urinary Organs.											Order 6.—Generative Organs.			Order 7.—Osseous and Locomotory System.				Order 8.—Integumentary System.			Total for Class III.			
Nephritis.	Ischuria.	Nephria (Bright's Disease).	Diabetes.	Calculus (Gravel, etc).	Cystitis.	Prostate, Disease of.	Kidney Disease.	Bladder, Diseases of.	Testicles, Disease of.	Total.			Ovarian Dropsy.	Disease of Uterus.	Total.	Bone, Diseases of.	Joint Diseases.	Vertebræ, Diseases of.	Total.			Phlegmon.	Ulcer.	Skin Diseases.	Total.			Males.	Females.	Sex not stated.	Total.
										M.	F.								M.	F.					M.	F.					
..	..	1	1	..	..	..	..	..	..	..	2		..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	10	..	15
..	..	..	..	..	..	..	..	..	..	1	..		..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	5	..	13
..	..	..	..	..	..	..	1	..	..	1	..		..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	4	..	8
..	..	..	..	..	..	..	..	..	..	..	..		..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
..	..	..	1	..	..	..	..	..	..	1	..		..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	1	..	4
..	..	..	..	..	..	1	..	..	..	1	..		..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	5	..	11
2	..	2	..	..	..	..	..	..	..	2	2		..	..	..	..	..	..	..	..	..	..	..	..	..	..	25	30	..	55
..	..	2	..	..	..	..	..	..	..	1	1		..	1	1	..	..	..	..	..	..	..	..	..	..	..	5	9	..	14
..	..	..	..	..	..	..	..	..	..	..	..		1	..	1	..	..	..	..	..	..	..	..	..	..	..	2	6	..	8
..	..	..	..	..	..	..	..	..	..	..	..		..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	6	..	9
..	..	1	..	..	..	..	..	..	..	1	..		..	..	..	..	..	..	..	..	..	..	..	..	..	..	9	4	..	13
2	..	6	2	..	..	2	1	..	..	8	5		1	1	2	..	..	..	..	..	..	..	..	..	..	..	71	80	..	151

TABLE No. XV.

TOWNS IN BELKNAP COUNTY.	CLASS IV.—DEVELOPMENTAL DISEASES.																			
	Order 1.—Of Children.									Order 2.—Of Women.			Orders 3 and 4.				Total for Class IV.			
	Still-born.	Debility, Infantile.	Premature Birth.	Cyanosis.	Spina Bifida.	Other Malformations.	Teething.	Inanition.	Total.				Old Age.		Atrophy and Debility.		Male.	Female.	Total.	
									M.	F.	Childbirth.	Paramenia.	Total.	M.	F.	M.	F.			
Alton	..	..	..	..	..	..	..	..	....	....	..	..	....	1	....	....	....	1	....	1
Barnstead	..	..	1	..	..	..	..	..	1	....	..	..	....	....	....	....	....	1	....	1
Belmont	..	..	..	..	..	..	..	..	....	....	..	..	....	1	....	1	1	2	1	3
Center Harbor	..	..	..	..	..	..	..	..	....	....	..	..	....	....	....	....	....	....	....	....
Gilford	..	..	..	..	..	..	..	..	....	....	..	..	....	1	....	....	....	1	....	1
Gilmanton	..	..	..	..	..	..	..	..	....	....	1	..	1	3	....	....	1	3	2	5
Laconia	7	..	3	..	..	2	..	4	8	8	2	..	2	1	5	1	...	10	15	25
Meredith	..	..	..	..	..	..	..	..	....	....	..	..	....	2	1	....	....	2	1	3
New Hampton	..	..	..	1	..	..	..	..	1	....	..	..	....	....	2	....	....	1	2	3
Sanbornton	1	1	..	..	..	..	..	..	1	1	..	..	....	3	1	....	....	4	2	6
Tilton	1	..	..	..	..	..	..	..	....	1	..	..	....	2	....	....	....	2	1	3
Total	9	1	4	1	..	2	..	4	11	10	3	..	3	14	9	2	2	27	24	51

—*Continued.*

CLASS V.—VIOLENT DEATHS.

Order 1.—Accident and Negligence.								Order 2.		Order 3.—Suicide.										Order 4.—Various.				Total for Class V.			Grand Total for all Classes.			
Fractures and Contusions.	Wounds, Unspecified.	Burns and Scalds.	Poison.	Drowning.	Suffocation.	Various.	Total.	Homicide.		Wounds, Unspecified.	Wounds, Pistol or Gunshot.	Wounds, Knife.	Poison.	Drowning.	Hanging.	Otherwise.	Total.			Violent, not Classed.		Cause not Reported or Unclassified.		Male.	Female.	Total.	Males.	Females.	Not stated.	Total.
							M. F.	M.	F.								M.	F.	M.	F.	M.	F.	M.	F.						
						1	1															1	1	1	2	13	13	..	26
																											9	9	..	18
						1	1															1	...	1		11	9	..	20
																						1	...	1	... 1	4	2	..	6
				1			1															1	...	2	... 2	15	11	..	26
4						1	4	1														2	4	6	5 11	84	90	..	174
			1				1															1	1	1	2	7	14	..	21
																						1	...	1	... 1	9	11	..	20
																						1	...	1	... 1	16	12	..	28
4			1	1		3	8	1														6	6	14	7 21	181	188	..	369

TABLE No. XV.

CLASS I.—

ORDER 1.—Miasmatic.

TOWNS IN CARROLL COUNTY.	Carbuncle.	Cholera, Asiatic.	Cholera, Sporadic.	Cholera Infantum.	Cholera Morbus.	Croup (Pseudo-membranous).	Diphtheria.	Diarrhœa.	Dysentery.	Erysipelas.	Fever, Bilious.	Fever, Cerebro-spinal.	Fever, Intermittent.	Fever, Malarial.	Fever, Typhoid.	Fever, Typho-malarial.	Fever, Unspecified.	Fever, Yellow.	Influenza (Epidemic).	Measles.	Mumps.	Metria (Puerperal Fever).	Pertussis.
Albany	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Bartlett	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..
Brookfield	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Chatham	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Conway	..	..	..	2	..	..	..	1	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..
Eaton	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Effingham	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..
Freedom	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Hart's Location	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Jackson	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Madison	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..
Moultonborough	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Ossipee	..	..	..	1	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Sandwich	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..
Tamworth	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tuftonborough	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Wakefield	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..
Wolfeborough	..	..	..	3	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	..	..	..	7	..	2	1	3	1	1	..	..	..	..	2	..	..	..	6	1	..	1	..

—*Continued.*

ZYMOTIC DISEASES.

| | | |

TABLE No. XV.

TOWNS IN CARROLL COUNTY.	CLASS II.—CONSTITUTIONAL DISEASES.																						
	ORDER 1.—Diathetic.													ORDER 2.—Tubercular.							Total for Class II.		
	Gout.	Dropsy.	Anæmia.	Cancer, Various.	Cancer of Breast.	Cancer of Stomach.	Cancer of Uterus.	Noma (Canker).	Mortification.	Rheumatism.	Total.			Scrofula.	Tabes Mesenterica.	Phthisis.	Hydrocephalus.	Tubercular Meningitis.	Total.		Male.	Female.	Total.
											M.	F.							M.	F.			
Albany	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	1	1	1	1	2
Bartlett	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	2	..	..	..	2	1	2	3
Brookfield	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	1	1
Chatham	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	1	..	1
Conway	..	..	1	1	..	..	..	..	..	..	..	2	..	..	..	5	..	..	3	2	3	4	7
Eaton	..	..	..	1	1	..	..	..	..	..	1	1	..	..	..	2	..	..	..	2	1	3	4
Effingham	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	1	..	1
Freedom	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	2	..	2	..	2
Hart's Location	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Jackson	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Madison	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	1	1	1	1	2
Moultonboro'	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	1	..	..	1	..	2	..	2
Ossipee	..	1	..	2	..	..	..	..	1	..	3	1	..	..	..	2	..	..	2	..	5	1	6
Sandwich	..	1	..	..	..	..	..	..	..	..	..	1	..	1	..	3	..	..	3	1	3	2	5
Tamworth	..	1	..	1	..	..	..	..	..	..	2	..	..	..	..	1	..	..	1	..	3	..	3
Tuftonborough	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	1
Wakefield	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	..	..	3	3	3	3	6
Wolfeborough	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	8	1	1	3	7	4	7	11
Total	..	3	1	8	1	1	..	..	1	..	9	6	1	2	36	1	2	22	20	31	26	57

—*Continued.*

CLASS III.—LOCAL DISEASES.

Order 1.—Nervous System.													Order 2.—Circulatory System.					Order 3.—Respiratory System.										
Cephalitis.	Cerebritis.	Apoplexy.	Paralysis.	Insanity.	Chorea.	Epilepsy.	Tetanus.	Convulsions.	Brain Diseases.	Total.			Pericarditis.	Aneurism.	Heart Diseases.	Total.		Epistaxis.	Laryngitis.	Bronchitis, Acute.	Bronchitis, Chronic.	Pleurisy.	Pneumonia.	Asthma.	Lung Diseases.	Total.	
										M.	F.				M.	F.									M.	F.
..	..	..	1	..	..	..	..	..	..	..	1		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	..	..	1	..	..	..	..	..	..	..	2		..	..	..	..	..	..	..	1	..	..	5	..	..	3	3
..	..	..	..	..	..	..	..	..	1	1	..		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3	2	2	2	..	..	..	..	..	..	2	7		..	..	5	3	2	..	..	1	..	1	2	..	..	1	3
..	..	..	..	..	..	..	..	..	..	..	..		..	..	1	1	..	..	..	..	..	..	1	..	..	1	..
..	1	1	2	..	..	..	..	1	..	..	5		..	..	3	1	2	..	..	..	..	..	2	..	..	1	1
..	..	1	1	..	..	..	..	..	..	..	2		..	..	2	..	2	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	1	..	..	..	..	..	..	1	..		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	1	1	..	..	..	..	..	..	1	1		..	..	2	1	1	..	..	..	1	..	1	..	..	..	2
1	1	4	..	..	..	..	..	..	1	6	1		..	..	4	..	4	..	..	..	..	..	..	..	..	..	..
..	1	1	1	..	..	..	..	1	..	2	2		1	..	..	1	..	..	..	1	..	1	..	..	..	2	..
1	..	1	2	..	..	..	..	..	1	1	4		..	..	6	2	4	..	..	1	..	..	3	..	..	3	1
..	..	..	1	..	..	..	..	..	..	..	1		..	..	3	1	2	..	..	..	1	..	..	..	..	..	1
..	..	..	..	..	..	..	..	..	..	..	..		..	..	1	1	..	..	..	..	..	..	1	..	..	..	1
..	..	1	2	1	..	1	..	..	..	1	4		..	..	1	..	1	..	..	..	..	..	3	..	..	1	2
..	..	7	..	..	..	1	..	..	1	6	3		..	..	5	3	2	..	..	..	..	..	1	..	..	..	1
6	5	19	15	1	..	2	..	2	4	21	33		1	..	33	14	20	..	..	4	2	2	19	..	..	12	15

TABLE No. XV.

CLASS III.—LOCAL

ORDER 4.—Digestive Organs.

TOWNS IN CARROLL COUNTY.	Gastritis.	Enteritis.	Peritonitis.	Ascites.	Ulceration of Intestines.	Hernia.	Ileus.	Intussusception.	Stricture of Intestines.	Fistula.	Stomach Diseases.	Pancreas Diseases.	Hepatitis.	Jaundice.	Liver Diseases.	Spleen Diseases.	Bowel Diseases.	Total.	
																		M.	F.
Albany	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Bartlett	..	....	2	....	..	..	..	..	..	..	3	..	....	....	....	..	....	1	4
Brookfield	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Chatham	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Conway	..	....	....	....	..	1	..	..	..	..	..	..	....	....	1	..	....	1	1
Eaton	1	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	1
Effingham	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Freedom	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Hart's Location	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Jackson	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Madison	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Moultonborough	..	1	1	....	..	..	..	..	..	..	..	..	....	....	....	..	....	1	1
Ossipee	..	....	....	....	..	..	..	..	..	..	..	..	....	....	1	..	2	2	1
Sandwich	1	1	....	....	..	..	..	..	..	..	..	..	....	....	....	..	1	....	3
Tamworth	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Tuftonborough	..	....	....	....	..	..	..	..	..	..	1	..	....	....	....	..	2	3	....
Wakefield	..	1	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	1	....
Wolfeborough	1	1	....	....	..	1	..	..	..	..	..	..	....	....	1	..	....	1	3
Total	3	4	3	....	..	2	..	..	..	..	4	..	....	....	3	..	5	10	14

—*Continued.*

DISEASES.—*Continued.*

Order 5.—Urinary Organs.												Order 6.—Generative Organs.			Order 7.—Osseous and Locomotory System.				Order 8.—Integumentary System.				Total for Class III.			
Nephritis.	Ischuria.	Nephria (Bright's Disease).	Diabetes.	Calculus (Gravel, etc.)	Cystitis.	Prostate, Disease of.	Kidney Diseases.	Bladder, Diseases of.	Testicles, Disease of.	Total.		Ovarian Dropsy.	Disease of Uterus.	Total.	Bones, Diseases of.	Joint Diseases.	Vertebræ, Diseases of.	Total.	Phlegmon.	Ulcer.	Skin Diseases.	Total.		Male.	Female.	Sex not stated.	Total.
										M.	F.											M.	F.				
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	1
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	9	..	13
..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	2	1	..	1	..	1	..	..	2	3	..	..	..	..	..	..	..	..	..	..	..	..	9	16	..	25
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	3
..	..	..	1	..	..	..	1	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	2	8	..	10
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	5	..	6
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	2
..	..	..	1	..	..	..	1	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	3	5	..	8
..	..	2	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	7	8	..	15
..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	8	3	..	11
..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	6	13	..	19
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	4	..	5
..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	5	1	..	6
..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	3	8	..	11
..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	10	10	..	20
..	..	10	3	..	1	..	3	..	..	7	10	1	..	1	..	..	..	..	..	..	..	..	..	64	93	..	157

TABLE No. XV.

TOWNS IN CARROLL COUNTY.	CLASS IV.—DEVELOPMENTAL DISEASES.																				
	ORDER 1.—Of Children.										ORDER 2.—Of Women.			ORDERS 3 and 4.				Total for Class IV.			
	Still-born.	Debility, Infantile.	Premature Birth.	Cyanosis.	Spina Bifida.	Other Malformations.	Teething.	Innutrition.	Total.		Childbirth.	Paramenia.	Total.	Old Age.		Atrophy and Debility.		Male.	Female.	Total.
									M.	F.				M.	F.	M.	F.			
Albany	..	..	..	..	..	..	..	..	....	....	1	..	1	....	....	....	....	....	1	1
Bartlett	..	..	..	..	..	..	..	..	....	....	..	..	....	....	....	....	....	....	....	....
Brookfield	..	..	..	..	1	..	..	..	1	....	..	..	....	2	....	....	....	3	....	3
Chatham	..	..	..	..	..	..	..	..	....	....	..	..	....	....	....	....	....	....	....	....
Conway	..	..	..	..	..	..	..	..	....	....	..	..	....	1	3	....	....	1	3	4
Eaton	..	..	..	..	..	..	..	..	....	....	..	..	....	....	....	....	....	....	....	....
Effingham	..	..	..	..	..	..	..	..	....	....	..	..	....	....	....	....	....	....	....	....
Freedom	..	..	..	..	..	..	..	..	....	....	..	..	....	....	....	....	....	....	....	....
Hart's Location	..	..	..	..	..	..	..	..	....	....	..	..	....	....	....	....	....	....	....	....
Jackson	..	..	..	..	..	..	..	..	....	....	..	..	....	....	....	....	....	....	....	....
Madison	..	..	..	..	..	..	..	..	....	....	..	..	....	....	1	....	....	....	1	1
Moultonboro'	..	..	..	..	..	..	..	..	....	....	..	..	....	....	....	1	....	1	....	1
Ossipee	1	..	..	1	..	..	..	..	1	1	..	..	....	1	....	....	....	2	1	3
Sandwich	1	..	..	..	1	..	..	..	2	....	..	..	....	....	1	....	....	2	1	3
Tamworth	..	..	..	..	..	..	..	..	....	....	..	..	....	1	1	....	....	1	1	2
Tuftonborough	1	..	..	..	..	..	..	..	1	....	2	..	....	2	1	....	....	2	3	5
Wakefield	..	..	..	..	..	..	..	..	1	....	1	..	....	....	....	....	....	....	1	1
Wolfeborough	1	..	..	..	..	..	..	..	1	....	..	..	....	1	1	....	....	2	1	3
Tota	4	..	..	1	2	..	..	2	5	4	1	..	1	8	8	1	..	14	13	27

Continued.

CLASS V.—VIOLENT DEATHS.

Order 1.—Accident and Negligence.								Order 2.		Order 3.—Suicide.										Order 4.—Various.				Total for Class V.			Grand Total for all Classes.			
Fractures and Contusions.	Wounds, Unspecified.	Burns and Scalds.	Poison.	Drowning.	Suffocation.	Various.	Total.			Wounds, Unspecified.	Wounds, Pistol or Gunshot.	Wounds, Knife.	Poison.	Drowning.	Hanging.	Otherwise.	Total.			Violent, not Classed.		Cause not Reported or Unclassified.								
						M.	F.	Homicide.									M.	F.		M.	F.	M.	F.	Male.	Female.	Total.	Male.	Female.	Not stated.	Total.
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	1	1	4	..	5
..	..	..	..	..	..	2	2	..	..	..	..	..	..	..	..	..	..	..	..	3	..	5	..	5	12	12	..	24		
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	2	..	6		
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	1	1	..	2		
..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	16	25	1	42		
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	3	5	..	8		
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	9	..	13		
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	3	6	..	9		
..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	..	..	1		
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	3	1	..	4		
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	1	2	5	11	..	16		
1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	2	..	2	1	3	12	9	..	21		
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	1	2	17	8	1	26		
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	1	12	18	..	30		
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	5	..	10		
..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	3	1	3	4	9	8	..	17		
1	..	..	..	..	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..	1	..	3	..	3	10	13	..	23		
..	..	..	..	2	..	1	2	1	..	..	..	..	..	..	..	..	..	..	..	2	2	3	5	25	23	..	48			
2	..	..	..	3	..	6	9	2	..	..	..	..	..	..	..	..	..	..	..	8	13	17	15	32	143	160	2	305		

TABLE No. XV.

CLASS I.

ORDER 1.—Miasmatic.

TOWNS IN MERRIMACK COUNTY.	Carbuncle.	Cholera, Asiatic.	Cholera, Sporadic.	Cholera Infantum.	Cholera Morbus.	Croup (Pseudo-membranous).	Diphtheria.	Diarrhœa.	Dysentery.	Erysipelas.	Fever, Bilious.	Fever, Cerebro-spinal.	Fever, Intermittent.	Fever, Malarial.	Fever, Typhoid.	Fever, Typho-malarial.	Fever, Unspecified.	Fever, Yellow.	Influenza (Epidemic).	Measles.	Mumps.	Metria (Puerperal Fever).	Pertussis.
Allenstown				5			1																1
Andover																						1	
Boscawen				1																			
Bow							4																
Bradford																						1	
Canterbury							3												1				
Chichester															1				1				
Concord				27	1	3	7	4	3	1					2				4			2	5
Danbury																							
Dunbarton																							
Epsom									1														1
Franklin				5	1		2								2				2				
Henniker																							
Hill																			1				
Hooksett				2								1			2								
Hopkinton															1					1			
Loudon					1				1														
Newbury									1	1													
New London								1	1														
Northfield				1											1				4				
Pembroke				7		1	1	1		2					1				1				
Pittsfield				1				1		2					2				2				
Salisbury																							
Sutton				1																			
Warner															1				1			1	
Webster																							
Wilmot				1				2	1														
Total				51	3	4	18	9	8	6		1			13				17	1		5	7

Continued.

ZYMOTIC DISEASES.

Tonsilitis.	Scarlatina.	Small-pox.	Varicella.	Total. M.	Total. F.	Order 2—Enthetic. Glanders.	Gonorrhea.	Hydrophobia.	Malignant Pustule.	Septicæmia.	Syphilis.	Total. M.	Total. F.	Order 3.—Dietic. Alcoholism.	Delirium Tremens.	Inanition.	Purpura and Scurvy.	Total. M.	Total. F.	Order 4.—Parasitic. Aphthæ.	Worms.	Other Parasites.	Total. M.	Total. F.	Total for Class I. Male.	Female.	Sex not stated.	Total.
..	..	..	..	1	6	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	7	..	8
..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
..	..	..	..	1	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2
..	..	..	..	3	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	1	..	4
..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
..	..	..	..	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	4
..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	2
1	..	..	..	26	34	..	..	..	..	3	..	3	..	..	..	..	..	..	..	..	..	..	..	..	29	34	..	63
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.....
..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2
..	..	..	..	3	9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	9	..	12
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.....
..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
..	1	..	..	..	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	..	6
..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	2
..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	2
..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	2
..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	2
..	..	..	..	5	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	1	..	6
..	..	..	..	9	5	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	10	5	..	15
..	..	..	..	2	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	6	..	8
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.....
..	..	..	..	1	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	2
..	..	..	..	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	3
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.....
..	..	..	..	3	1	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	4	1	..	5
1	1	..	..	66	79	..	..	..	..	8	..	6	2	..	..	..	..	..	..	..	..	..	..	..	72	81	..	153

TABLE No. XV.

| TOWNS IN MERRIMACK COUNTY. | CLASS II.—CONSTITUTIONAL DISEASES. | | |

—*Continued.*

CLASS III.—LOCAL DISEASES.

ORDER 1.—Nervous System.													ORDER 2.—Circulatory System.					ORDER 3.—Respiratory System.												
Cephalitis.	Cerebritis.	Apoplexy.	Paralysis.	Insanity.	Chorea.	Epilepsy.	Tetanus.	Convulsions.	Brain diseases.	Total.			Pericarditis.	Aneurism.	Heart Disease.	Total.		Epistaxis.	Laryngitis.	Bronchitis, Acute.	Bronchitis, Chronic.	Pleurisy.	Pneumonia.	Asthma.	Lung Diseases.	Total.		
										M.	F.					M.	F.									M.	F.		
2	..	1	..	..	..	..	..	..	..	2	1		..	..	1	1	....	..	..	....	..	..	2	..	..	1	1		
..	..	2	..	..	..	..	..	1	2	4	1		..	..	2	2	....	..	1	....	..	..	....	1	..	1	1		
..	..	12	..	..	..	..	..	..	..	8	4		2	..	....	....	2	..	..	....	..	..	5	..	..	5	....		
..	..	1	..	..	..	..	..	1	..	2	....		..	..	....	....	....	..	..	2	..	..	2	..	..	1	3		
1	1	..	6	..	..	..	..	1	..	3	6		..	..	1	....	1	..	..	....	..	..	5	..	..	4	1		
..	..	1	1	..	..	..	..	..	..	1	1		..	..	2	1	1	..	..	....	..	..	1	..	..	1	....		
..	..	..	..	..	..	..	..	..	1	....	1		..	..	1	....	1	..	..	....	1	..	....	..	..	....	1		
10	..	14	9	11	..	3	..	5	19	36	35		..	1	27	13	15	..	..	19	2	6	37	2	6	39	33		
..	..	1	..	..	..	..	..	..	..	....	1		..	..	....	....	....	..	..	....	..	..	3	..	..	1	2		
..	..	2	..	..	..	..	..	..	..	2	....		..	..	1	1	....	..	..	....	..	..	....	..	..	....	....		
1	..	..	..	..	..	..	..	..	..	....	1		..	..	3	1	2	..	..	....	..	..	1	..	..	1	....		
..	2	2	2	1	..	..	..	..	1	2	6		1	..	3	1	3	..	..	....	2	..	4	..	..	3	3		
..	1	1	1	..	..	..	..	..	..	....	3		..	..	1	1	....	..	..	....	2	..	....	1	..	2	1		
..	..	1	2	..	..	..	..	..	..	1	2		..	..	....	....	....	..	..	1	1	..	1	..	..	....	3		
..	1	..	..	..	..	..	..	..	1	2	....		..	..	1	....	1	..	..	....	..	..	5	..	..	2	3		
..	..	2	5	..	..	..	..	..	..	3	4		..	..	4	3	1	..	..	....	..	..	3	..	..	1	2		
..	..	..	1	..	..	..	..	..	..	1	....		..	..	3	1	2	..	..	....	..	..	3	..	..	2	1		
..	..	1	..	..	..	..	..	..	..	1	....		..	..	....	....	....	..	..	1	..	..	1	1	..	2	1		
1	..	..	3	..	..	..	..	..	..	2	2		..	..	....	....	....	..	..	....	..	..	2	..	..	....	2		
.	..	..	..	..	..	..	..	..	1	1	....		..	..	4	2	2	..	..	....	..	..	3	..	..	2	1		
2	..	3	1	..	..	..	..	2	..	8	....		..	..	1	1	....	..	..	1	..	..	4	..	..	4	1		
1	..	..	1	..	..	..	..	..	4	4	2		..	..	5	2	3	..	..	1	..	..	4	..	..	3	2		
1	..	..	1	..	..	..	..	1	..	1	2		..	..	3	1	2	..	..	....	..	..	....	..	..	....	....		
..	..	..	1	..	..	..	..	1	1	2	1		..	..	2	....	2	..	..	....	..	..	5	..	..	2	3		
..	..	2	1	1	..	..	..	..	2	2	4		..	..	3	2	1	..	..	....	..	..	2	..	..	....	2		
..	..	..	1	..	..	..	..	..	..	1	....		..	..	....	....	....	..	..	1	..	..	....	..	..	....	1		
..	..	1	..	..	..	..	..	..	..	1	....		..	..	3	....	3	..	..	....	..	..	2	..	..	1	1		
19	5	47	36	13	..	3	..	12	32	90	77		3	1	71	33	42	..	1	26	8	6	95	5	6	78	69		

TABLE No. XV.

CLASS III.—LOCAL

ORDER 4.—Digestive Organs.

TOWNS IN MERRIMACK COUNTY.	Gastritis.	Enteritis.	Peritonitis.	Ascites.	Ulceration of Intestines.	Hernia.	Ileus.	Intussusception.	Stricture of Intestines.	Fistula.	Stomach Diseases.	Pancreas Diseases.	Hepatitis.	Jaundice.	Liver Diseases.	Spleen Diseases.	Bowel Diseases.	Total.	
																		M.	F.
Allenstown	1	....	....	....	..	..	..	..	..	..	..	..	....	....	1	..	....	....	2
Andover	..	....	....	....	..	..	..	..	..	..	1	..	....	....	....	..	....	....	1
Boscawen	..	2	1	....	..	..	..	..	..	..	..	..	....	....	....	..	....	1	2
Bow	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Bradford	..	....	1	....	..	..	..	..	..	..	..	..	....	....	....	..	....	1	....
Canterbury	1	....	....	....	..	..	..	..	..	..	..	..	....	1	....	..	....	1	1
Chichester	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Concord	1	6	9	....	1	..	2	..	..	..	1	..	4	1	1	..	1	11	16
Danbury	..	....	....	....	1	..	..	..	..	..	..	..	....	....	1	..	....	2	....
Dunbarton	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Epsom	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Franklin	..	2	1	....	..	..	..	..	..	..	..	..	....	....	1	..	1	....	5
Henniker	..	....	....	....	..	1	..	..	..	..	..	..	....	....	....	..	....	....	1
Hill	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Hooksett	..	....	....	....	..	..	1	..	..	..	..	..	....	....	....	..	....	....	1
Hopkinton	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	1	....	1
Loudon	..	1	....	....	..	1	..	..	..	..	..	..	....	....	....	..	....	2	....
Newbury	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
New London	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Northfield	1	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	1
Pembroke	..	....	1	....	..	..	..	..	..	..	..	..	....	1	....	..	....	1	1
Pittsfield	..	....	....	....	..	..	1	..	..	..	..	..	....	....	....	..	....	....	1
Salisbury	..	....	....	1	..	..	..	..	..	..	..	..	....	....	....	..	....	....	1
Sutton	1	....	....	....	..	..	..	..	..	..	..	..	....	....	1	..	....	2	....
Warner	..	....	1	....	..	..	..	..	..	..	..	..	....	....	....	..	1	2	....
Webster	..	1	....	....	..	..	..	..	..	..	..	..	....	....	1	..	....	1	1
Wilmot	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Total	5	12	14	1	2	2	4	..	..	..	2	..	4	3	6	..	4	24	35

—*Continued.*

DISEASES.—*Continued.*

Order 5.—Urinary Organs.												Order 6.—Generative Organs.			Order 7.—Osseous and Locomotory System.				Order 8.—Integumentary System.			Total for Class III.			
Nephritis.	Ischuria.	Nephria (Bright's Disease).	Diabetes.	Calculus (Gravel, etc.).	Cystitis.	Prostate, Disease of.	Kidney Diseases.	Bladder, Diseases of.	Testicles, Disease of.	Total.		Ovarian Dropsy.	Disease of Uterus.	Total.	Bone, Diseases of.	Joint Diseases.	Vertebræ, Diseases of.	Total.	Phlegmon.	Ulcer.	Skin Diseases.	Total.		Male.	Female.	Sex not stated.	Total.
M.										F.								M.	F.								
..	..	..	..							..		..	..	..	..	..	..	..	..	..	..	..	..	4	4	..	8
1	1	..	1							2		1	..	..	..	..	1	..	1	..	..	..	..	10	4	..	14
..	..	..	1	..	1	..	..	..	..	2		..	..	..	..	..	..	..	..	..	..	..	..	16	8	..	24
..	..	..	..	..	..	..	..	..	..	..		1	..	1	..	..	..	..	..	..	..	..	..	3	4	..	7
..	..	1	..	..	1	..	..	..	..	2		..	..	..	..	..	..	..	..	..	..	..	..	8	10	.	18
..	..	..	..	..	..	..	..	..	..	..		..	..	..	..	..	..	..	..	..	..	..	..	4	3	..	7
..	..	..	..	..	..	..	..	..	..	..		..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	3
5	..	7	3	..	1	..	1	..	..	14		3	..	..	..	..	..	..	..	1	..	..	1	113	103	..	216
..	..	2	..	..	..	..	..	..	..	1		1	..	..	..	..	..	..	..	..	..	..	..	4	4	..	8
..	..	1	..	..	..	..	..	..	..	1		..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	4
..	..	..	1	..	..	..	..	..	..	1		..	..	..	..	..	..	..	..	..	..	..	..	3	3	..	6
..	..	2	..	..	..	..	..	..	..	2		..	..	..	..	..	..	..	..	..	..	..	..	8	17	..	25
..	..	2	..	..	..	..	..	..	..	1		1	1	1	..	..	..	..	..	..	..	..	..	4	7	..	11
..	..	..	..	..	..	..	..	..	..	..		..	..	..	..	..	..	..	..	..	..	..	..	1	5	..	6
..	..	2	..	..	..	..	..	..	..	2		..	1	1	..	..	..	..	..	..	..	..	..	6	6	..	12
..	..	..	..	..	..	..	..	..	..	..		..	..	..	..	..	..	..	..	..	..	..	..	7	8	..	15
..	..	..	..	..	..	..	..	..	..	..		..	..	..	..	..	..	..	..	..	..	..	..	6	3	..	9
1	..	..	..	..	..	..	..	..	..	1		..	..	..	..	..	..	..	..	..	..	..	..	4	1	..	5
..	..	1	..	..	1	..	..	..	..	1		1	..	..	..	..	..	..	..	..	..	..	..	3	5	..	8
..	..	..	1	..	1	..	..	..	..	1		1	..	..	..	..	..	..	..	..	..	..	..	6	5	..	11
..	..	..	1	..	..	..	..	..	..	1		1	..	..	..	..	..	..	..	..	..	..	..	15	3	..	18
..	..	1	..	..	..	..	..	..	..	..		..	..	..	..	..	..	..	..	1	..	..	1	9	9	..	18
..	..	..	..	..	..	..	1	..	..	1		..	..	..	..	..	..	..	..	..	..	..	..	3	5	..	8
..	..	..	1	..	..	..	1	..	..	2		..	..	..	..	..	..	..	..	..	..	..	..	8	6	..	14
..	..	1	..	..	..	..	1	..	..	1		1	..	..	..	..	..	..	..	..	..	..	..	7	8	..	15
..	..	..	..	..	..	..	..	..	..	..		..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	4
..	..	..	..	..	..	..	..	..	..	..		..	..	..	..	..	..	..	..	..	..	..	..	2	4	..	6
7	1	20	9	..	5	..	4	..	..	34		12	3	3	..	1	..	1	..	2	..	..	2	260	240	..	500

TABLE No. XV.

TOWNS IN MERRIMACK COUNTY.	CLASS IV.—DEVELOPMENTAL DISEASES.																				
	Order 1.—Of Children.										Order 2.—Of Women.			Orders 3 and 4.				Total for Class IV.		
	Still-born.	Debility, Infantile.	Premature Birth.	Cyanosis.	Spina Bifida.	Other Malformations.	Teething.	Innutrition.	Total.		Childbirth.	Paramenia.	Total.	Old Age.		Atrophy and Debility.		Male.	Female.	Total.
									M.	F.				M.	F.	M.	F.			
Allenstown	..	5	1	..	..	..	..	..	1	5	..	..	....	2	2	...	...	3	7	10
Andover	..	..	..	..	..	..	..	..	....	....	..	..	....	....	....	...	...	....	....	....
Boscawen	2	..	2	..	..	..	..	1	2	3	..	..	....	....	3	...	...	2	6	8
Bow	1	..	1	..	..	..	..	..	....	2	..	..	....	1	....	...	1	1	3	4
Bradford	..	..	..	..	..	..	..	..	....	....	..	..	....	1	....	...	...	1	....	1
Canterbury	..	..	..	..	..	..	..	..	....	....	..	..	....	....	....	...	...	....	....	....
Chichester	1	..	..	..	..	..	..	..	1	....	..	..	....	1	....	...	...	2	....	2
Concord	11	4	12	1	..	1	..	12	17	24	..	..	....	7	11	1	5	25	40	65
Danbury	..	..	..	..	..	..	..	..	....	....	..	..	....	....	1	...	...	....	1	1
Dunbarton	..	..	..	..	..	..	..	..	....	....	..	..	....	2	1	...	...	2	1	3
Epsom	..	..	..	..	..	..	..	..	....	....	..	..	....	....	....	1	1	1	1	2
Franklin	4	..	..	..	1	..	..	1	2	4	..	..	....	....	2	...	...	2	6	8
Henniker	..	..	..	..	..	..	..	..	....	....	..	..	....	1	1	...	...	1	1	2
Hill	..	..	..	..	..	..	..	..	....	....	..	..	....	....	1	...	...	....	1	1
Hooksett	2	..	1	..	..	..	..	..	2	1	..	..	....	....	2	1	...	3	3	6
Hopkinton	1	..	..	..	..	..	..	..	1	....	..	..	....	....	1	...	...	1	1	2
Loudon	..	..	1	..	..	..	..	..	1	....	..	..	....	....	1	...	...	1	1	2
Newbury	..	..	..	..	..	..	..	..	....	....	..	..	....	....	....	...	...	....	....	....
New London	..	..	..	..	..	..	..	..	....	....	..	..	....	....	1	...	...	....	1	1
Northfield	1	..	..	..	..	..	..	1	1	1	..	..	....	1	....	...	...	2	1	3
Pembroke	..	5	3	..	..	..	1	..	4	5	..	..	....	....	4	1	1	5	10	15
Pittsfield	..	..	..	..	..	..	..	1	....	1	..	..	....	1	2	...	...	1	3	4
Salisbury	..	..	..	..	..	..	..	..	....	....	..	..	....	1	2	...	...	1	2	3
Sutton	..	..	..	..	..	..	..	..	....	....	..	..	....	....	....	...	1	....	1	1
Warner	..	1	..	..	..	..	..	..	....	1	..	..	....	2	3	...	1	2	5	7
Webster	..	..	..	..	..	..	..	..	....	....	..	..	....	....	....	...	...	....	....	....
Wilmot	..	..	..	..	..	..	..	..	....	....	..	..	....	1	....	...	...	1	....	1
Total	23	15	21	1	1	1	1	16	32	47	..	..	....	21	38	4	10	57	95	152

—*Continued.*

CLASS V.—VIOLENT DEATHS.																															Grand Total for all Classes.
Order 1.—Accident and Negligence.										Order 2.		Order 3.—Suicide.										Order 4.—Various.				Total for Class V.					
Fractures and Contusions.	Wounds, Unspecified.	Burns and Scalds.	Poison.	Drowning.	Suffocation.	Various.	Total.			Homicide.		Wounds, Unspecified.	Wounds, Pistol or Gunshot.	Wounds, Knife.	Poison.	Drowning.	Hanging.	Otherwise.	Total.			Violent, not Classed.		Cause not Reported or Unclassified.		Male.	Female.	Total.	Males.	Females.	Not stated.	Total.	
							M.	F.		M.	F.								M.	F.			M.	F.								
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	1	14	22	..	36
..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	2	3	13	9	..	22
..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	1	..	1	..	..	..	..	1	1	2	24	18	..	42
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	1	2	3	9	12	..	21
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	1	2	11	14	..	25
1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	2	2	4	9	11	..	20
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	3	..	7
6	1	1	..	5	1	5	15	..	4	..	..	..	..	..	..	1	1	..	1	1	1	..	1	4	18	9	27	211	226	..	437
..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	5	6	..	11
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7	3	..	10
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	1	7	7	..	14
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	16	44	2	62
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	1	9	14	..	23
1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	2	8	..	10
..	..	..	..	1	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	1	6	1	7	20	19	..	39
..	..	..	..	3	..	..	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	3	1	4	14	14	..	28
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	1	13	6	..	19
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	3	..	8
..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	2	..	2	9	7	..	16
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	1	15	7	..	22
1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	1	3	4	37	26	..	63
2	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	3	1	4	18	21	1	40
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	8	..	13
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10	9	..	19
2	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	1	3	17	17	..	34
..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	3	2	..	5
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	9	..	17
13	1	3	..	9	1	9	28	..	8	..	..	..	..	..	..	1	1	1	1	2	1	..	..	17	16	47	26	73	515	545	3	1063

TABLE No. XV.

CLASS I.—

ORDER 1.—Miasmatic.

TOWNS IN HILLSBOROUGH COUNTY.	Carbuncle.	Cholera, Asiatic.	Cholera, Sporadic.	Cholera Infantum.	Cholera Morbus.	Croup (Pseudo-membranous).	Diphtheria.	Diarrhœa.	Dysentery.	Erysipelas.	Fever, Bilious.	Fever, Cerebro-spinal.	Fever, Intermittent.	Fever, Malarial.	Fever, Typhoid.	Fever, Typho-malarial.	Fever, Unspecified.	Fever, Yellow.	Influenza (Epidemic).	Measles.	Mumps.	Metria (Puerperal Fever).	Pertussis.
Amherst	..	..	..	1	1	..	1	..	2	..	..	..	..	..	..	..	..	..	1	..	..	..	..
Antrim	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Bedford	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1
Bennington	..	..	..	3	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..
Brookline	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Deering	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Francestown	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..
Goffstown	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..
Greenfield	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Greenville	..	..	..	5	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..
Hancock	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Hillsborough	..	..	..	2	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Hollis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Hudson	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Litchfield	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Lyndeborough	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Manchester	..	..	..	86	2	5	2	6	5	4	..	1	..	2	14	..	..	..	7	2	..	..	4
Mason	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Merrimack	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Milford	..	..	..	3	1	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	1	..
Mont Vernon	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Nashua	..	..	..	49	..	..	1	7	5	2	1	..	..	..	5	..	..	..	3	1	..	..	..
New Boston	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
New Ipswich	..	..	..	1	..	1	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..
Pelham	..	..	..	2	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Peterborough	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..
Sharon	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Temple	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Weare	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..
Wilton	..	..	..	1	..	..	..	2	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..
Windsor	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	1	..	..	161	4	7	5	17	17	8	2	1	..	2	24	..	..	..	17	4	..	1	6

—*Continued.*

ZYMOTIC DISEASES.

Tonsilitis.	Scarlatina.	Small-pox.	Varicella.	Total. M.	Total. F.	Order 2.—Enthetic. Glanders.	Gonorrhea.	Hydrophobia.	Malignant Pustule.	Septicæmia.	Syphilis.	Total. M.	Total. F.	Order 3—Dietic. Alcoholism.	Delirium Tremens.	Inanition.	Purpura and Scurvy.	Total. M.	Total. F.	Order 4.—Parasitic. Aphthæ.	Worms.	Other Parasites.	Total. M.	Total. F.	Total for Class I. Male.	Female.	Sex not stated.	Total.
..	..	..	..	..	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	6	..	6
..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2
..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2
..	..	..	..	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	4
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	2
..	..	..	..	..	2	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	3
..	..	..	..	3	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	1	..	4
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	2	..	..	5	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	4	..	9
..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
..	..	..	..	2	1	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	1	..	1	..	3	2	..	5
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	1	1	..	2
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
..	6	..	..	68	78	..	..	..	..	4	1	1	4	4	1	..	5	..	..	..	..	..	..	..	74	82	..	156
..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
..	..	..	..	3	4	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	3	5	..	8
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	1	..	..	40	35	..	..	..	..	2	..	..	2	..	..	..	..	..	..	..	..	..	..	..	40	37	..	77
..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
..	..	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	4
..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	3
..	..	..	..	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	3
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	1	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2
..	..	..	..	3	3	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	3	4	..	7
..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
..	9	..	..	140	146	..	..	..	..	9	2	2	9	6	1	..	7	..	..	..	1	..	1	..	149	156	..	305

TABLE No. XV.

TOWNS IN HILLSBOROUGH COUNTY.	CLASS II.—CONSTITUTIONAL DISEASES.																																
	ORDER 1.—Diathetic.																								ORDER 2.—Tubercular.								Total for Class II.		
	Gout.		Dropsy.		Anæmia.		Cancer, Various.		Cancer of Breast.		Cancer of Stomach.		Cancer of Uterus.		Noma (Canker).		Mortification.		Rheumatism.		Total.		Scrofula.		Tabes Mesenterica.		Phthisis.		Hydrocephalus.		Tubercular Meningitis.		Total.		Male.	Female.	Total.
																			M.	F.											M.	F.			
Amherst	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	...	1			..	..	1	1	..	..	..	..	2	...	2	1	3
Antrim	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1			..	1	3	..	..	..	..	..	..	..	4	1	5	6
Bedford	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	...	1			..	..	1	..	..	..	..	..	1	...	1	1	2
Bennington	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	...	...			..	..	...	..	..	..	..	..	...	...	...	...	...
Brookline	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	...	...			..	..	1	..	1	..	..	..	2	...	2	2	2
Deering	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	...	2			..	..	...	..	..	..	..	..	...	...	...	2	2
Francestown	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	...	2			..	..	1	..	..	..	..	..	1	...	3	3	3
Goffstown	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	...	...			..	..	1	..	..	..	..	..	1	...	1	1	1
Greenfield	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	...	...			..	..	3	..	..	..	1	..	2	1	2	3	3
Greenville	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	...			..	..	6	..	..	..	4	..	2	5	2	7	7
Hancock	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	...	...			..	..	3	..	..	..	1	..	2	2	2	2	4
Hillsborough	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	...	1			..	..	5	..	..	..	4	..	1	4	2	6	6
Hollis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	...	...			..	..	...	..	..	..	..	..	...	...	...	...	...
Hudson	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1			..	..	...	..	..	..	1	..	1	1	2	3	3
Litchfield	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	...	1			..	..	1	..	..	..	..	..	1	...	2	2	2
Lyndeborough	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	1	1	...	1			..	..	1	..	..	..	..	..	1	1	2	2	3
Manchester	..	5	2	15	..	8	4	..	2	6	14	28		2	3	91	5	5	50	56	64	84	148											
Mason	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	...	1			..	..	1	..	..	..	..	..	1	...	2	2	2
Merrimack	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	1	..	..	1	...			..	..	1	..	..	..	1	..	...	2	...	2	2
Milford	..	..	..	2	..	..	..	..	..	..	..	2	..	..	1	10	..	1	5	7	5	9	14											
Mont Vernon	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	...	1	1											
Nashua	..	1	..	3	..	6	2	..	1	..	5	8		2	..	30	1	..	16	17	21	25	46											
New Boston	..	..	..	..	..	1	..	..	1	1	1	2	..	..	..	1	..	..	..	1	1	3	4											
New Ipswich	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	1	1	1	1	2											
Pelham	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	1	..	..	1	...	2	...	2											
Peterborough	..	1	..	..	..	..	1	..	..	..	1	1	..	..	..	3	..	..	2	1	3	2	5											
Sharon	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..											
Temple	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	...	1	...	1											
Weare	..	1	..	4	..	..	..	..	..	..	3	2	..	..	..	4	..	1	2	3	5	5	10											
Wilton	..	..	..	2	..	..	..	..	..	1	2	1	..	..	..	17	1	..	8	10	10	11	21											
Windsor	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..											
Total	..	12	3	37	..	16	7	..	5	9	33	56		4	5	190	8	9	100	116	133	172	305											

—Continued.

CLASS III.—LOCAL DISEASES.

Order 1.—Nervous System.													Order 2.—Circulatory System.						Order 3.—Respiratory System.											
Cephalitis.	Cerebritis.	Apoplexy.	Paralysis.	Insanity.	Chorea.	Epilepsy.	Tetanus.	Convulsions.	Brain diseases.	Total.			Pericarditis.	Aneurism.	Heart Disease.	Total.			Epistaxis.	Laryngitis.	Bronchitis, Acute.	Bronchitis, Chronic.	Pleurisy.	Pneumonia.	Asthma.	Lung Diseases.	Total.		
										M.	F.					M.	F.										M.	F.	
..	..	2	2	..	..	..	..	..	..	1	3	1	..	5	3	3	..	..	..	..	..	..	..	5	1	..	2	4	
..	..	2	..	..	..	..	..	..	1	1	2	..	..	6	6	..	..	..	..	..	2	..	..	2	..	1	5	..	
..	..	5	1	..	..	..	..	..	..	3	3	..	..	1	1	..	..	..	..	..	2	..	2	6	..	..	2	8	
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
..	..	1	1	..	..	..	..	1	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	
..	..	1	..	..	..	..	..	..	..	1	..	..	..	1	1	..	..	..	..	..	..	..	..	1	..	..	..	1	
..	..	..	..	..	..	..	..	2	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
..	..	3	..	..	..	..	..	..	..	2	1	..	..	3	1	2	..	..	..	..	..	..	..	1	..	..	..	1	
..	..	3	..	..	..	..	..	..	..	..	3	..	..	2	1	1	..	..	..	..	..	..	..	..	..	..	..	..	
..	..	1	..	..	..	..	..	1	..	1	1	..	..	2	1	1	..	..	..	..	..	..	1	1	..	..	..	2	
..	..	1	1	..	..	..	..	..	..	2	..	..	..	3	2	1	..	..	..	..	..	..	..	1	..	..	..	1	
..	1	2	2	..	..	..	..	..	1	3	3	..	..	4	2	2	..	..	..	..	..	..	..	6	2	..	4	4	
2	..	3	..	..	..	..	..	..	1	1	5	1	..	3	4	..	..	..	..	..	1	..	..	..	..	..	1	..	
1	..	1	1	1	..	..	..	..	..	2	2	1	..	3	1	3	..	..	..	..	..	..	..	1	..	..	1	..	
..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
..	..	1	..	..	..	..	..	..	2	2	1	..	..	2	1	1	..	..	..	..	..	..	..	1	..	..	..	1	
14	9	23	13	1	..	3	..	13	8	39	45	6	1	44	29	22	..	1	40	3	3	66	1	2	60	56	
..	..	1	..	..	..	..	..	..	1	1	1	..	..	..	..	..	..	..	1	..	..	1	..	..	1	1	
..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	3	..	..	..	..	1	1	2	..	..	2	2	
1	..	2	2	..	..	1	..	..	1	2	5	..	..	3	3	..	..	..	1	..	..	11	..	..	3	9	
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
13	2	22	11	1	..	..	..	8	2	29	30	..	..	15	5	10	..	..	9	1	1	29	1	..	22	19	
..	..	2	..	..	..	..	..	..	..	2	..	1	..	4	3	2	..	..	2	..	..	..	..	..	1	1	
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	2	
..	..	1	2	..	..	..	..	..	..	2	1	..	..	2	2	..	..	..	2	..	..	4	1	..	4	3	
..	..	4	1	..	..	..	..	..	2	6	1	..	..	7	3	4	..	..	1	..	..	5	..	..	1	5	
..	..	1	..	..	..	..	..	..	..	1	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	
..	..	1	1	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
..	..	4	1	..	..	..	..	..	1	3	3	..	..	3	1	2	..	..	..	..	..	1	..	..	..	..	1	
3	..	9	..	..	..	..	..	..	7	11	8	..	..	4	4	..	..	..	1	..	..	12	..	..	9	4	
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	
34	12	97	39	3	..	4	..	25	27	120	121	10	1	121	77	55	..	1	63	5	8	159	6	3	119	126	

TABLE No. XV.

CLASS III.—LOCAL

ORDER 4.—Digestive Organs.

TOWNS IN HILLSBOROUGH COUNTY.	Gastritis.	Enteritis.	Peritonitis.	Ascites.	Ulceration of Intestines.	Hernia.	Ileus.	Intussusception.	Stricture of Intestines.	Fistula.	Stomach Diseases.	Pancreas Diseases.	Hepatitis.	Jaundice.	Liver Diseases.	Spleen Diseases.	Bowel Diseases.	Total. M.	Total. F.
Amherst	..	....	1	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	1
Antrim	..	.. .	1	....	..	..	..	..	..	..	1	..	....	....	....	..	....	1	1
Bedford	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Bennington	1	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	1
Brookline	..	....	....	....	..	1	..	..	..	..	..	..	1	....	....	..	....	1	1
Deering	2	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	2
Francestown	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Goffstown	..	....	....	....	..	..	..	..	..	..	1	..	....	....	....	..	....	1	....
Greenfield	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Greenville	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Hancock	..	....	....	....	1	..	..	..	..	..	1	..	....	....	....	..	....	1	1
Hillsborough	1	....	....	....	..	..	..	..	..	..	..	..	....	....	1	..	....	....	2
Hollis	..	1	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	1	....
Hudson	..	....	....	....	..	..	1	..	..	..	..	..	....	....	1	..	1	3	....
Litchfield	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Lyndeborough	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Manchester	5	11	10	....	1	2	3	..	..	..	5	..	2	....	10	1	1	30	21
Mason	..	....	....	....	..	1	..	..	..	..	..	..	....	....	....	..	....	1	....
Merrimack	..	....	....	....	..	..	..	..	..	..	..	..	1	....	1	..	....	1	1
Milford	1	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	1
Mont Vernon	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Nashua	3	9	....	....	..	..	2	..	..	..	5	..	....	....	3	..	2	14	10
New Boston	..	....	1	....	..	..	..	..	..	..	1	..	....	....	....	..	....	2	....
New Ipswich	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Pelham	1	....	1	....	..	1	..	..	..	..	..	..	....	....	....	..	....	2	1
Peterborough	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Sharon	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Temple	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Weare	..	....	1	....	..	..	..	..	..	..	1	..	....	....	....	..	1	1	2
Wilton	..	....	1	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	1
Windsor	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Total	14	21	16	....	2	5	6	..	..	..	15	..	4	....	16	1	5	59	46

—*Continued.*

DISEASES.—*Continued.*

Order 5.—Urinary Organs.												Order 6.—Generative Organs.			Order 7.—Osseous and Locomotory System.				Order 8.—Integumentary System.				Total for Class III.			
Nephritis.	Ischuria.	Nephria (Bright's Disease).	Diabetes.	Calculus (Gravel, etc.)	Cystitis.	Prostate, Disease of.	Kidney Diseases.	Bladder, Diseases of.	Testicles, Disease of.	Total.		Ovarian Dropsy.	Disease of Uterus.	Total.	Bones, Diseases of.	Joint Diseases.	Vertebræ, Diseases of.	Total.	Phlegmon.	Ulcer.	Skin Diseases.	Total.		Male.	Female.	Sex not stated.	Total.
										M.	F.							M.	F.				M.	F.				
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	11	..	17
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13	3	..	16
..	..	1	1	1	..	..	..	..	..	2	1	..	..	..	..	..	..	..	..	1	..	..	..	1	8	13	..	21
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	2	..	6
..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	3	..	6
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2
..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	4	5	..	9
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	4	..	5
2	..	1	1	..	..	..	..	..	..	3	1	..	..	..	..	..	..	..	..	..	..	..	..	..	5	5	..	10
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	3	..	8
..	..	..	..	1	..	..	1	..	..	1	1	1	..	1	..	..	..	..	..	..	1	..	1	..	10	14	..	24
..	..	1	..	..	1	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9	5	..	14
3	..	..	..	..	1	..	..	..	..	3	1	..	..	..	..	..	..	..	..	..	..	..	..	..	10	6	..	16
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
..	..	1	..	..	..	..	1	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	4	4	..	8
4	..	9	5	1	1	..	4	..	..	9	15	..	..	..	..	..	..	..	1	1	..	1	1	168	160	..	328
..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	3	3	..	6
..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	6	4	..	10
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	15	..	23
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	..	4	1	..	1	..	2	..	..	4	5	..	1	1	..	..	..	..	1	..	..	..	1	..	74	76	..	150
..	..	..	..	..	1	..	1	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10	3	..	13
..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	3
..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	10	6	..	16
..	..	2	1	..	..	..	..	..	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	11	12	..	23
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2
..	..	1	..	..	..	..	..	..	..	1	..	1	..	1	..	..	..	..	..	..	..	..	..	..	6	9	..	15
..	..	..	..	..	..	..	2	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	26	13	..	39
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
10	..	20	13	3	6	..	12	..	..	33	31	2	1	3	..	..	..	..	3	1	1	1	4	409	386	..	795

TABLE No. XV.

TOWNS IN HILLSBORO' COUNTY.	CLASS IV.—DEVELOPMENTAL DISEASES.																			
	ORDER 1.—Of Children.									ORDER 2.—Of Women.			ORDERS 3 and 4.				Total for Class IV.		
	Still-born.	Debility, Infantile.	Premature Birth.	Cyanosis.	Spina Bifida.	Other Malformations.	Teething.	Inanition.	Total.				Old Age.		Atrophy and Debility.				
									M.	F.	Childbirth.	Paramenia.	Total.	M.	F.	M.	F.	Male.	Female.	Total.
Amherst	..	..	1	..	..	..	..	2	1	2	..	..	..	..	..	1	3	2	5	7
Antrim	..	..	2	..	..	..	..	1	..	3	..	..	..	..	..	1	1	1	5	6
Bedford	1	1	..	..	..	..	..	1	3	..	..	..	..	..	1	..	..	3	1	4
Bennington	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	1	1
Brookline	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	1
Deering	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1
Francestown	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	2	2
Goffstown	4	..	..	..	..	..	..	1	3	2	..	..	..	..	1	..	..	3	3	6
Greenfield	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	..	1	2	3
Greenville	6	1	..	..	..	..	..	1	8	..	..	..	..	..	..	..	..	8	..	8
Hancock	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	2	2
Hillsborough	..	..	1	..	..	..	..	1	1	1	1	..	1	3	..	..	1	4	3	7
Hollis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1
Hudson	..	..	..	..	..	..	..	1	1	..	..	..	..	..	2	..	1	1	3	4
Litchfield	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Lyndeborough	..	..	1	..	..	..	..	..	1	..	..	..	..	..	1	..	1	1	2	3
Manchester	58	21	17	..	2	8	24	77	53	4	..	4	8	20	2	6	87	83	170
Mason	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	1	1	2
Merrimack	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Milford	3	..	1	..	..	..	..	..	4	..	..	1	1	1	4	1	..	6	5	11
Mont Vernon	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1
Nashua	17	17	9	1	..	..	..	6	26	24	..	..	..	1	4	2	..	29	28	57
New Boston	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	..	1	2	3
New Ipswich	2	..	1	..	..	..	..	..	1	2	..	..	..	..	..	..	..	1	2	3
Pelham	1	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	2	2
Peterborough	2	..	2	..	..	..	..	..	2	2	1	..	1	1	2	..	..	3	5	8
Sharon	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Temple	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	1	1
Weare	..	..	..	..	..	..	..	..	..	..	..	..	..	1	3	..	..	1	3	4
Wilton	2	..	..	..	..	..	..	4	4	2	..	..	..	..	1	..	..	4	3	7
Windsor	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	97	40	35	1	..	2	8	42	132	93	8	1	9	18	53	7	13	157	168	325

—*Continued.*

CLASS V.—VIOLENT DEATHS.																																Grand Total for all Classes.			
Order 1.—Accident and Negligence.										Order 2.		Order 3.—Suicide.										Order 4.—Various.				Total for Class V.									
Fractures and Contusions.	Wounds, Unspecified.	Burns and Scalds.	Poison.	Drowning.	Suffocation.	Various.	Total.			Homicide.		Wounds, Unspecified.	Wounds, Pistol or Gunshot.	Wounds, Knife.	Poison.	Drowning.	Hanging.	Otherwise.	Total.			Violent, not Classed.		Cause not Reported or Unclassified.		Male.	Female.	Total.									
						M.	F.	M.	F.										M.	F.	M.	F.	M.	F.	M.	F.												
..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	1	..	1	2	3	11	25	...	36
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	1	17	14	...	31
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	1	2	14	17	...	31
..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	2	2	2	6	...	8
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	5	...	9
1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	5	7	...	12
..	..	..	1	1	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	2	3	9	...	12
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	1	2	10	11	...	21
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	1	..	1	4	8	...	12
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	23	11	...	34
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	2	1	3	1	4	11	8	...	19
..	..	..	..	1	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	3	..	3	24	21	...	45
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9	6	...	15
..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	2	..	2	15	12	...	27
..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	1	3	...	4
..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	7	9	...	16
7	3	2	2	8	2	10	24	10	..	..	..	..	..	1	..	2	..	2	4	1	..	..	..	110	122	136	133	269	519	542	*10	1071
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	6	...	11
..	..	..	..	..	..	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	3	..	3	12	4	...	16
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	22	34	...	56
1	..	..	..	..	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	2	1	3	2	3	...	5
..	..	..	1	..	2	12	11	4	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	19	25	30	30	60	194	196	...	390
..	..	..	..	2	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	2	14	9	...	23
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	9	...	12
1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	15	9	...	24
1	1	..	..	1	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	3	22	20	...	42
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	...	2
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	1	2	3	3	...	5
..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	1	..	2	1	3	15	19	...	34
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	3	..	3	1	4	46	32	...	78
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	...	2
11	4	2	4	15	4	30	50	20	..	..	..	..	..	1	2	4	2	5	4	..	..	..	..	140	154	195	178	373	1033	1060	10	2103

*Classed with males.

TABLE No. XV.

CLASS I.

ORDER 1.—Miasmatic.

TOWNS IN CHESHIRE COUNTY.	Carbuncle.	Cholera, Asiatic.	Cholera, Sporadic.	Cholera Infantum.	Cholera Morbus.	Croup (Pseudo-membranous).	Diphtheria.	Diarrhœa.	Dysentery.	Erysipelas.	Fever, Bilious.	Fever, Cerebro-spinal.	Fever, Intermittent.	Fever, Malarial.	Fever, Typhoid.	Fever, Typho-malarial.	Fever, Unspecified.	Fever, Yellow.	Influenza (Epidemic).	Measles.	Mumps.	Metria (Puerperal Fever).	Pertussis.
Alstead																							
Chesterfield																			2				
Dublin																							
Fitzwilliam						1																	
Gilsum																							
Harrisville															1								
Hinsdale				2		1	1		2														1
Jaffrey				1		2		1		1										1		1	
Keene				1	1	1	2		2	1	1				2				2				
Marlborough				4						1													
Marlow				2																			
Nelson				1																			
Richmond																							
Rindge				4																			
Roxbury																							
Stoddard																				2			
Sullivan																							
Surry																							
Swanzey				1																			
Troy				1		1	1															1	
Walpole				2				1							1				1				
Westmorel'nd									1						1								
Winchester				3					6											2			
Total				22	1	6	4	2	11	3	1				5				5	5		2	1

—*Continued.*

ZYMOTIC DISEASES.

Tonsilitis.	Scarlatina.	Small-pox.	Varicella.	Order 2—Enthetic. Total. M.	Total. F.	Glanders.	Gonorrhœa.	Hydrophobia.	Malignant Pustule.	Septicæmia.	Syphilis.	Total. M.	Total. F.	Order 3.—Dietic. Alcoholism.	Delirium Tremens.	Inanition.	Purpura and Scurvy.	Total. M.	Total. F.	Order 4.—Parasitic. Aphthæ.	Worms.	Other Parasites.	Total. M.	Total. F.	Total for Class I. Male.	Female.	Sex not stated.	Total.
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.....
..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	2
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.....
..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.....
..	..	..	..	..	1	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2
..	..	..	..	1	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	6	..	7
..	..	..	..	3	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	4	..	7
..	..	..	..	9	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9	4	..	13
..	..	..	..	2	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	3	..	5
..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	2
..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
..	..	..	..	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	4
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.....
..	..	..	..	2	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	2	1	..	3
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.....
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.....
..	1	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	2
..	..	..	..	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	4
..	..	..	..	4	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	1	..	5
..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2
..	..	..	..	5	6	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	6	6	..	12
..	1	..	..	39	30	..	..	..	..	4	..	2	2	..	..	..	..	..	..	..	..	..	..	..	41	32	..	73

TABLE No. XV.

TOWNS IN CHESHIRE COUNTY.	CLASS II.—CONSTITUTIONAL DISEASES.																						
	ORDER 1.—Diathetic.													ORDER 2.—Tubercular.							Total for Class II.		
	Gout.	Dropsy.	Anæmia.	Cancer, Various.	Cancer of Breast.	Cancer of Stomach.	Cancer of Uterus.	Noma (Canker).	Mortification.	Rheumatism.	Total.			Scrofula.	Tabes Mesenterica.	Phthisis.	Hydrocephalus.	Tubercular Meningitis.	Total.		Male.	Female.	Total.
											M.	F.							M.	F.			
Alstead	..	..	..	1	..	..	..	..	..	..	..	1	1	..	..	2	..	..	1	1	1	2	3
Chesterfield	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dublin	..	1	..	2	..	..	..	..	..	..	2	1	..	..	..	..	..	..	..	..	2	1	3
Fitzwilliam	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	2	..	..	..	2	..	3	3
Gilsum	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	2	..	..	2	..	2	1	3
Harrisville	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	1	1
Hinsdale	..	..	2	..	..	..	..	..	..	..	1	1	..	..	..	4	..	..	1	3	2	4	6
Jaffrey	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	2	..	..	2	..	2	1	3
Keene	..	1	..	4	..	1	..	..	1	1	3	5	..	..	..	15	..	..	7	8	10	13	23
Marlborough	..	..	..	1	..	..	1	..	1	..	1	2	..	..	..	1	..	..	1	..	2	2	4
Marlow	..	..	..	1	..	1	..	..	..	..	1	1	..	..	..	..	..	..	..	..	1	1	2
Nelson	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Richmond	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	1	..	1
Rindge	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	1	..	..	1	..	2	..	2
Roxbury	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Stoddard	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	3	..	3	3
Sullivan	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	1	1
Surry	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	1
Swanzey	..	..	..	..	..	1	..	..	..	1	1	1	..	..	..	3	1	..	2	2	3	3	6
Troy	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	2	..	1	1	2	1	3	4
Walpole	..	..	..	1	..	1	..	..	..	..	2	..	..	1	4	..	..	..	3	2	5	2	7
Westmoreland	..	..	..	2	..	..	..	..	1	..	1	2	..	..	1	..	1	..	1	1	2	3	5
Winchester	..	..	..	3	..	..	..	..	..	..	..	3	1	..	3	..	..	..	2	2	2	5	7
Total	..	2	2	20	..	5	1	..	3	2	13	22	1	1	48	1	2	25	28		38	50	88

—*Continued.*

CLASS III.—LOCAL DISEASES.

ORDER 1.—Nervous System.													ORDER 2.—Circulatory System.					ORDER 3.—Respiratory System.													
Cephalitis.	Cerebritis.	Apoplexy.	Paralysis.	Insanity.	Chorea.	Epilepsy.	Tetanus.	Convulsions.	Brain Diseases.	Total.			Pericarditis.	Aneurism.	Heart Diseases.	Total.		Epistaxis.	Laryngitis.	Bronchitis, Acute.	Bronchitis, Chronic.	Pleurisy.	Pneumonia.	Asthma.	Lung Diseases.	Total.		
										M.	F.					M.	F.									M.	F.		
..	..	1	..	..	..	..	..	..	1	....	2	..	..	1	....	1	..	..	..	..	..	....	3	..	..	1	2		
..	..	..	..	..	..	..	..	..	..	....	....	..	..	5	2	3	..	..	..	..	..	....	....	..	..	....	....		
..	..	..	..	..	..	..	..	..	..	....	....	..	..	....	....	....	..	..	..	..	..	....	1	..	..	....	1		
1	1	1	..	..	..	..	..	1	1	3	2	..	..	3	1	2	..	..	..	..	..	....	5	..	..	5	....		
..	..	1	..	..	..	..	..	..	..	1	....	..	..	1	....	1	..	..	..	..	..	....	1	..	..	1	....		
..	1	1	..	..	..	..	..	..	..	1	1	..	..	1	....	1	..	..	..	1	..	....	....	..	..	1	....		
4	1	3	4	..	..	..	..	..	..	8	4	..	..	2	2	....	..	..	1	..	1	1	3	..	..	2	4		
..	..	1	..	..	..	..	..	..	..	1	....	..	..	....	....	....	..	..	1	4	..	1	1	..	..	3	4		
7	2	4	6	..	..	..	..	2	1	10	12	..	..	21	14	7	..	..	..	1	..	....	20	..	..	11	10		
..	1	1	1	..	..	..	..	..	..	2	1	..	..	2	....	2	..	..	..	..	1	....	8	..	..	3	6		
..	..	..	..	..	..	2	..	2	3	1	..	..	2	....	2	..	..	..	..	..	..	....	1	..	..	1	....		
..	..	2	..	..	..	1	..	..	2	1	..	..	....	....	....	..	..	..	..	..	..	....	1	..	..	1	....		
..	..	..	1	..	..	..	..	..	..	1	..	..	2	....	2	..	..	..	..	..	..	....	....	..	..	....	....		
1	1	..	1	..	..	..	..	1	..	2	2	..	..	4	2	2	..	..	..	1	..	....	2	..	..	2	1		
..	..	..	..	..	..	..	..	..	..	....	....	..	..	1	1	....	..	..	..	..	..	....	2	..	..	1	1		
..	..	..	1	..	..	..	..	..	..	1	....	..	..	1	....	1	..	..	..	..	..	....	1	..	..	....	1		
..	..	..	..	..	..	..	..	..	..	....	....	..	..	....	....	....	..	..	..	..	..	....	1	..	..	1	....		
..	..	..	..	..	..	..	..	..	..	....	....	..	..	....	....	....	..	..	..	..	..	....	1	..	..	1	....		
..	1	..	5	..	..	..	..	..	1	3	4	..	..	7	4	3	..	..	..	..	..	....	4	..	..	3	1		
1	..	..	..	..	..	..	..	..	..	....	1	..	..	1	1	....	..	..	..	..	..	....	1	..	..	1	...		
..	..	3	..	..	..	..	..	1	1	2	3	1	..	5	4	2	..	..	2	1	..	....	4	1	..	4	4		
3	..	3	..	..	..	..	..	..	..	3	3	..	..	5	3	2	..	1	..	..	..	....	2	..	1	4	....		
1	2	..	2	..	..	..	..	..	..	3	2	..	..	2	2	....	..	..	..	..	..	....	2	..	..	....	2		
18	10	21	21	..	..	3	..	5	7	44	41	1	..	66	36	31	..	3	9	3		2	64	1	1	46	37		

TABLE No. XV.

CLASS III.—LOCAL

ORDER 4.—Digestive Organs.

TOWNS IN CHESHIRE COUNTY.	Gastritis.	Enteritis.	Peritonitis.	Ascites.	Ulceration of Intestines.	Hernia.	Ileus.	Intussusception.	Stricture of Intestines.	Fistula.	Stomach Diseases.	Pancreas Diseases.	Hepatitis.	Jaundice.	Liver Diseases.	Spleen Diseases.	Bowel Diseases.	Total.	
																		M.	F.
Alstead	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Chesterfield	..	....	....	....	....	1	....	....	....	....	....	....	1	....	....	....	....	2	....
Dublin	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Fitzwilliam	..	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	1	....
Gilsum	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1
Harrisville	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	2	....
Hinsdale	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	....
Jaffrey	1	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	4
Keene	1	3	3	....	....	....	....	....	....	....	....	....	....	....	1	....	....	3	5
Marlborough	..	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	1	....
Marlow	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Nelson	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Richmond	1	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	2
Rindge	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1
Roxbury	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Stoddard	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Sullivan	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Surry	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Swanzey	..	....	....	....	....	....	....	....	....	....	1	..	....	....	1	....	....	2	....
Troy	..	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	1
Walpole	..	1	....	....	....	....	1	....	....	....	1	..	....	....	....	....	....	2	1
Westmoreland	..	....	....	1	1	....	....	....	....	....	....	....	....	....	....	....	....	2	....
Winchester	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Total	5	5	5	1	1	2	2	..	..	..	2	..	1	....	3	..	5	17	15

—*Continued.*

DISEASES.—*Continued.*

Order 5.—Urinary Organs.											Order 6.—Generative Organs.			Order 7.—Osseous and Locomotory System.						Order 8.—Integumentary System.						Total for Class III.			
Nephritis.	Ischuria.	Nephria (Bright's Disease).	Diabetes.	Calculus (Gravel, etc).	Cystitis.	Prostate, Disease of.	Kidney Disease.	Bladder, Diseases of.	Testicles, Disease of.	Total.																		
										M.	F.	Ovarian Dropsy.	Disease of Uterus.	Total.	Bone, Diseases of.	Joint Diseases.	Vertebræ, Diseases of.	M.	F.	Phlegmon.	Ulcer.	Skin Diseases.	M.	F.	Males.	Females.	Sex not stated.	Total.
..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	5	..	7
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	3	..	7
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
..	..	2	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	11	5	..	16
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	4
..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	2	..	7
1	..	1	..	..	1	..	1	..	..	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	15	10	..	25
1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	3	10	..	13
..	..	3	..	..	1	..	2	..	..	3	3	..	..	..	..	1	..	1	..	..	..	..	..	..	42	37	..	79
..	..	2	..	..	..	..	1	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	6	12	..	18
..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	3	..	8
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	1	..	4
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..	5
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	6	..	12
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	3
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	2	2	..	4
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2
..	..	2	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	14	8	..	22
..	..	1	..	..	..	..	1	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	13	11	..	24
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	12	5	..	17
..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	4	..	10
2	..	13	..	..	3	..	7	..	..	13	12	..	..	..	..	1	..	1	..	..	1	..	1	..	158	136	..	294

TABLE No. XV.

TOWNS IN CHESHIRE COUNTY.	CLASS IV.—DEVELOPMENTAL DISEASES.																			
	ORDER 1.—Of Children.										ORDER 2.—Of Women.			ORDERS 3 and 4.				Total for Class IV.		
	Still-born.	Debility, Infantile.	Premature Birth.	Cyanosis.	Spina Bifida.	Other Malformations.	Teething.	Inmutrition.	Total.		Childbirth.	Paramenia.	Total.	Old Age.		Atrophy and Debility.		Male.	Female.	Total.
									M.	F.				M.	F.	M.	F.			
Alstead	1	..	..	..	..	..	1	..	2	....	..	..	....	....	....	1	2	3	2	5
Chesterfield	..	..	..	..	..	..	..	..	....	....	..	..	....	2	2	...	...	2	2	4
Dublin	..	..	..	..	..	..	..	..	....	....	..	..	....	1	....	...	...	1	....	1
Fitzwilliam	..	..	..	..	..	..	..	..	....	....	..	..	....	....	2	1	...	1	2	3
Gilsum	..	..	..	..	..	..	..	..	....	....	..	..	....	....	....	....	....	....	....	....
Harrisville	1	..	..	..	..	..	..	1	1	1	..	..	....	....	....	....	....	1	1	2
Hinsdale	..	..	..	..	..	..	..	..	....	....	..	..	....	1	1	...	...	1	1	2
Jaffrey	1	1	..	..	..	..	..	..	1	1	..	..	....	1	3	...	...	2	4	6
Keene	4	..	..	1	..	..	..	1	3	3	..	..	....	8	6	...	1	11	10	21
Marlborough	4	..	1	..	..	..	..	2	6	1	1	..	1	1	....	...	2	7	4	11
Marlow	..	..	..	1	..	..	..	..	1	....	..	..	....	....	....	....	....	1	....	1
Nelson	..	..	..	..	..	..	..	..	....	....	..	..	....	....	....	....	....	....	....	....
Richmond	..	..	..	..	..	..	..	..	....	....	..	..	....	1	....	...	...	1	....	1
Rindge	1	1	..	..	..	..	..	..	....	2	..	..	....	2	....	2	...	4	2	6
Roxbury	..	..	..	..	..	..	..	..	....	....	..	..	....	....	....	....	....	....	....	....
Stoddard	..	..	..	..	..	..	..	..	....	....	..	..	....	1	....	...	...	1	....	1
Sullivan	..	..	..	..	..	..	..	..	....	....	..	..	....	....	....	....	....	....	....	....
Surry	..	..	..	..	..	..	..	..	....	....	..	..	....	....	....	....	....	....	....	....
Swanzey	1	..	1	..	..	..	..	..	....	2	..	..	....	....	....	....	1	....	3	3
Troy	..	..	..	..	..	..	..	..	....	....	..	..	....	1	....	...	...	1	....	1
Walpole	..	..	..	..	..	..	..	..	....	....	..	..	....	1	1	...	...	1	1	2
Westmoreland	..	..	..	..	..	..	..	..	....	....	..	..	....	2	....	...	...	2	....	2
Winchester	..	..	..	..	..	..	..	1	....	1	..	..	....	2	....	...	1	2	2	4
Total	13	2	2	2	..	..	1	5	14	11	1	..	1	24	15	4	7	42	34	76

—*Continued.*

CLASS V.—VIOLENT DEATHS.																																		Grand Total for all Classes.
ORDER 1.—Accident and Negligence.										ORDER 2.		ORDER 3.—Suicide.										ORDER 4.—Various.				Total for Class V.								
Fractures and Contusions.	Wounds, Unspecified.	Burns and Scalds.	Poison.	Drowning.	Suffocation.	Various.	Total.			Homicide.		Wounds, Unspecified.	Wounds, Pistol or Gunshot.	Wounds, Knife.	Poison.	Drowning.	Hanging.	Otherwise.	Total.			Violent, not Classed.		Cause not Reported or Unclassified.		Male.	Female.	Total.	Males.	Females.	Not stated.	Total.				
							M.	F.	M.	F.								M.	F.			M.	F.	M.	F.										
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	1	6	10	..	16		
..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	1	4	5	9	9	..	18		
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	2	..	5		
1	..	..	..	..	1	1	2	1	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	3	..	6	1	7	19	11	..	30		
..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	5	3	..	8		
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7	5	..	12		
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	2	..	2	21	21	..	42		
1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	1	2	11	20	..	31		
..	..	..	..	1	1	5	7	..	..	..	..	..	..	..	..	..	..	1	1	..	..	1	1	7	6	16	7	23	88	71	..	159		
..	..	..	..	2	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	2	1	3	19	22	..	41		
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9	4	..	13		
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	1	..	5		
1	..	..	..	..	1	..	1	1	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	2	1	4	2	6	6	8	..	14		
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	1	15	10	..	25		
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	3		
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	6	..	11		
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2		
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	3		
..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	1	2	20	15	..	35		
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	2	..	2	8	8	..	16		
1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	24	15	..	39		
1	..	..	..	1	..	1	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	3	19	10	..	29		
..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	3	..	5	..	5	21	17	..	38		
5	1	..	..	4	3	10	17	6	..	..	..	..	..	..	..	..	1	3	4	..	..	1	1	22	13	44	20	64	323	272	..	595		

TABLE No. XV.

TOWNS IN SULLIVAN COUNTY.	CLASS I. Order 1.—Miasmatic.																								
	Carbuncle.	Cholera, Asiatic.	Cholera, Sporadic.	Cholera Infantum.	Cholera Morbus.	Croup (Pseudo-membranous).	Diphtheria.	Diarrhœa.	Dysentery.	Erysipelas.	Fever, Bilious.	Fever, Cerebro-spinal.	Fever, Intermittent.	Fever, Malarial.	Fever, Typhoid.	Fever, Typho-malarial.	Fever, Unspecified.	Fever, Yellow.	Influenza (Epidemic).	Measles.	Mumps.	Metria (Puerperal Fever).	Pertussis.		
Acworth																									
Charlestown				1												1									
Claremont				10											1				1			1	1		
Cornish					1										1										
Croydon				1															2						
Goshen																			1						
Grantham																									
Langdon																									
Lempster								1																	
Newport				3											3		1		2						
Plainfield				2											1										
Springfield				1								1							1						
Sunapee				1				1											1						
Unity				1																					
Washington																									
Total				20	1			2				1			6	1	1		8			1	1		

—*Continued.*

ZYMOTIC DISEASES.

Tonsilitis.	Scarlatina.	Small-pox.	Varicella.	Total. M.	Total. F.	Order 2.—Enthetic. Glanders.	Gonorrhœa.	Hydrophobia.	Malignant Pustule.	Septicæmia.	Syphilis.	Total. M.	Total. F.	Order 3—Dietic. Alcoholism.	Delirium Tremens.	Inanition.	Purpura and Scurvy.	Total. M.	Total. F.	Order 4.—Parasitic. Aphthæ.	Worms.	Other Parasites.	Total. M.	Total. F.	Total for Class I. Male.	Female.	Sex not stated.	Total.
..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	1	..	1
..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2
..	..	..	..	7	7	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	8	7	..	15
..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2
..	..	..	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	3
..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	....	..	1
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	..	...
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	..	...
..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	....	..	1
..	..	..	..	4	5	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	5	5	..	10
..	..	..	..	1	2	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	3	..	4
..	..	..	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	3
..	1	..	..	..	4	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	4	..	5
..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	1	..	1
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	..	...
..	2	..	..	18	26	..	..	..	..	3	..	2	1	1	..	..	1	..	..	..	..	..	..	..	21	27	..	48

TABLE No. XV.

TOWNS IN SULLIVAN COUNTY.	CLASS II.—CONSTITUTIONAL DISEASES.																						
	ORDER 1.—Diathetic.													ORDER 2.—Tubercular.							Total for Class II.		
	Gout.	Dropsy.	Anæmia.	Cancer, Various.	Cancer of Breast.	Cancer of Stomach.	Cancer of Uterus.	Noma (Canker).	Mortification.	Rheumatism.	Total.			Scrofula.	Tabes Mesenterica.	Phthisis.	Hydrocephalus.	Tubercular Meningitis.	Total.		Male.	Female.	Total.
											M.	F.							M.	F.			
Acworth	..	..	..	1	..	..	..	..	..	..	..	1	1	..	..	2	..	..	2	..	2	1	3
Charlestown	..	..	..	2	..	1	..	..	1	..	1	3	..	..	5	..	..	4	1	5	4	9	
Claremont	..	..	..	2	1	..	1	..	2	..	2	4	..	..	10	..	..	4	6	6	10	16	
Cornish	..	..	..	1	..	..	..	..	..	..	..	1	..	..	2	..	..	..	2	..	3	3	
Croydon	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	1	
Goshen	..	1	..	1	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	2	2	
Grantham	..	..	..	1	..	..	..	..	..	..	..	1	1	..	1	..	..	1	1	1	2	3	
Langdon	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	1	1	1	1	2	
Lempster	..	..	..	1	..	..	..	..	..	..	..	1	..	..	1	..	..	..	1	..	2	2	
Newport	..	..	..	2	..	..	..	..	..	1	3	..	..	..	6	..	..	3	3	6	3	9	
Plainfield	..	1	..	1	..	..	..	..	..	..	1	1	..	..	1	..	..	1	..	2	1	3	
Springfield	..	..	..	2	..	..	..	..	..	..	..	2	..	..	2	..	..	2	..	2	2	4	
Sunapee	..	..	..	2	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	1	1	2	
Unity	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Washington	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	1	1
Total	..	2	..	17	1	1	1	..	3	1	8	18	1	..	32	..	1	18	16	26	34	60	

—*Continued.*

CLASS III.—LOCAL DISEASES.

Order 1.—Nervous System.													Order 2.—Circulatory System.					Order 3.—Respiratory System.										
Cephalitis.	Cerebritis.	Apoplexy.	Paralysis.	Insanity.	Chorea.	Epilepsy.	Tetanus.	Convulsions.	Brain Diseases.	Total.			Pericarditis.	Aneurism.	Heart Diseases.	Total.		Epistaxis.	Laryngitis.	Bronchitis, Acute.	Bronchitis, Chronic.	Pleurisy.	Pneumonia.	Asthma.	Lung Diseases.	Total.		
										M.	F.				M.	F.									M.	F.	
..	..	..	..	..	..	..	..	..	1	....	1	..	..	2	1	1	..	..	..	..	..	....	5	..	..	2	3	..
2	..	1	3	1	..	..	..	..	..	3	4	2	..	1	1	2	..	..	..	1	..	1	4	..	..	3	3	..
..	1	6	4	2	..	..	..	1	1	6	9	1	..	6	3	4	..	..	..	..	..	1	15	..	..	6	10	..
..	..	2	1	..	..	..	..	..	..	1	2	..	..	5	2	3	..	..	..	..	3	....	1	..	..	2	2	..
..	..	1	..	..	..	..	..	..	1	2	....	....	..	2	....	2	..	..	..	1	..	....	....	..	..	1	....	..
..	..	..	..	..	..	..	..	..	1	1	....	....	..	3	2	1	..	..	..	..	..	....	1	..	..	1	....	..
..	..	1	..	..	..	..	..	..	..	1	....	....	..	1	1	....	..	..	..	..	..	....	....	..	..	....	....	..
..	..	..	1	1	..	..	..	..	..	1	1	....	..	1	....	1	..	..	..	..	..	....	....	..	..	....	....	..
..	..	..	..	..	..	..	..	..	..	....	....	....	..	2	1	1	..	..	..	..	..	....	1	..	1	....	2	..
..	..	7	..	..	..	1	..	..	2	4	6	....	..	8	5	3	..	..	1	..	..	....	11	..	..	9	3	..
..	..	..	..	..	..	..	..	..	..	....	....	....	..	1	....	1	..	..	1	..	..	....	5	..	..	1	5	..
..	..	2	..	..	..	..	..	..	..	....	2	....	..	....	....	....	..	..	..	..	..	....	....	..	1	1	....	..
..	..	1	..	..	..	..	..	..	..	....	1	....	..	3	....	3	..	..	..	..	..	....	....	..	..	....	....	..
..	..	..	..	..	..	..	..	1	..	1	....	....	..	1	1	....	..	..	..	..	..	....	1	..	..	1	....	..
..	..	..	..	..	..	..	..	..	..	....	....	....	..	1	....	1	..	..	..	..	..	....	1	..	..	1	....	..
2	1	21	9	4	..	1	..	2	6	20	26	3	..	37	17	23	..	..	4	3	2	45	..	2	28	28		

TABLE No. XV.

CLASS III.—LOCAL

ORDER 4.—Digestive Organs.

TOWNS IN SULLIVAN COUNTY.	Gastritis.	Enteritis.	Peritonitis.	Ascites.	Ulceration of Intestines.	Hernia.	Ileus.	Intussusception.	Stricture of Intestines.	Fistula.	Stomach Diseases.	Pancreas Diseases.	Hepatitis.	Jaundice.	Liver Diseases.	Spleen Diseases.	Bowel Diseases.	Total. M.	Total. F.
Acworth	..	....	....	....	....	....	....	....	....	....	....	....	....	1	2	..	....	2	1
Charlestown	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	..	....	....	....
Claremont	..	1	1	....	....	....	....	....	....	....	....	....	....	1	1	..	....	1	3
Cornish	..	....	...	....	....	....	....	....	....	....	....	....	....	....	....	..	....	....	....
Croydon	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	..	....	....	....
Goshen	..	....	....	....	....	....	1	....	....	....	....	....	....	....	....	..	....	1	....
Grantham	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	..	....	....	1
Langdon	..	....	1	....	....	....	....	....	....	....	....	....	....	....	....	..	....	1	....
Lempster	..	1	....	....	....	....	....	....	....	....	....	....	1	....	....	..	....	2	....
Newport	..	1	2	....	....	....	....	....	....	....	1	..	....	....	1	..	....	3	2
Plainfield	1	....	....	....	....	....	....	....	....	....	....	....	1	....	....	..	1	2	1
Springfield	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	..	....	....	1
Sunapee	..	....	....	....	....	....	....	....	....	....	1	....	....	....	....	..	....	....	1
Unity	..	....	....	...	....	....	....	....	....	....	....	....	....	....	1	..	....	1	....
Washington	..	....	1	....	....	....	....	....	....	....	....	....	....	....	1	..	....	2	....
Total	3	3	5	....	....	....	1	....	....	....	2	..	2	2	6	..	1	15	10

—*Continued.*

DISEASES.—*Continued.*

Order 5.—Urinary Organs.												Order 6.—Generative Organs.			Order 7.—Osseous and Locomotory System.				Order 8.—Integumentary System.				Total for Class III.			
Nephritis.	Ischuria.	Nephria (Bright's Disease).	Diabetes.	Calculus (Gravel, etc.).	Cystitis.	Prostate, Disease of.	Kidney Diseases.	Bladder, Diseases of.	Testicles, Disease of.	Total.		Ovarian Dropsy.	Disease of Uterus.	Total.	Bone, Diseases of.	Joint Diseases.	Vertebræ, Diseases of.	Total.	Phlegmon.	Ulcer.	Skin Diseases.	Total.		Male.	Female.	Sex not stated.	Total.
										M.	F.							M. F.				M.	F.				
..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	6	6	..	12
..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	7	10	..	17
..	..	4	..	..	..	..	3	..	..	2	5	..	..	..	..	..	..	..	..	..	..	..	..	18	31	..	49
..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	6	7	..	13
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	2	..	5
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	1	..	6
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	3
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	4
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	3	4	..	7
..	..	2	..	..	..	..	1	..	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..	22	16	..	38
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	7	..	10
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	3	..	4
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	1	5	..	6
..	..	2	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	5	1	..	6
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	3	2	..	5
..	..	10	..	..	..	..	5	..	..	6	9	..	..	..	..	..	..	..	1	1	1	1	2	87	98	..	185

TABLE No. XV.

TOWNS IN SULLIVAN COUNTY.	CLASS IV.—DEVELOPMENTAL DISEASES.																					
	ORDER 1.—Of Children.										ORDER 2.—Of Women.			ORDERS 3 and 4.				Total for Class IV.				
	Still-born.	Debility, Infantile.	Premature Birth.	Cyanosis.	Spina Bifida.	Other Malformations.	Teething.	Innutrition.	Total.		Childbirth.	Paramenia.	Total.	Old Age.		Atrophy and Debility.		Male.	Female.	Total.		
									M.	F.				M.	F.	M.	F.					
Acworth	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1		
Charlestown	2	2	..	..	..	..	..	..	4	..	..	..	..	..	..	..	..	4	..	4		
Claremont	6	3	5	..	..	..	..	..	11	3	..	..	..	2	1	1	..	14	4	18		
Cornish	..	..	..	..	..	..	..	1	..	1	..	..	..	1	..	..	..	1	1	2		
Croydon	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
Goshen	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
Grantham	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1		
Langdon	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	1	1		
Lempster	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	1		
Newport	..	..	2	..	..	..	..	..	2	..	..	..	..	1	..	..	..	3	..	3		
Plainfield	1	..	..	..	..	1	..	..	1	1	..	..	..	..	1	..	..	1	2	3		
Springfield	..	..	..	..	..	1	..	..	1	..	..	..	..	1	..	..	..	2	..	2		
Sunapee	..	..	..	1	..	..	..	..	1	..	..	..	..	1	1	..	..	2	1	3		
Unity	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1		
Washington	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
Total	9	5	7	1	..	2	..	1	20	5	1	..	1	7	6	1	..	28	12	40		

—*Continued.*

CLASS V.—VIOLENT DEATHS.																												Grand Total for all Classes.			
Order 1.—Accident and Negligence.								Order 2.		Order 3.—Suicide.										Order 4.—Various.				Total for Class V.							
Fractures and Contusions.	Wounds, Unspecified.	Burns and Scalds.	Poison.	Drowning.	Suffocation.	Various.	Total.			Wounds, Unspecified.	Wounds, Pistol or Gunshot.	Wounds, Knife.	Poison.	Drowning.	Hanging.	Otherwise.	Total.			Violent, not Classed.		Cause not Reported or Unclassified.											
							M.	F.	M.	F.							M.	F.	M.	F.	M.	F.	Male.	Female.	Total.	Male.	Female.	Not stated.	Total.
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	1	2	9	10	...	19
1	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	1	..	..	..	1	..	2	1	3	19	16	...	35
..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	2	1	3	48	53	...	101
..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	...	1	9	12	...	21
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	...	2	2	4	7	...	11
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	3	...	9
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	...	1	...	1	4	4	...	8
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	...	1	...	1	4	4	...	8
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	...	2	2	5	8	...	13
1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	3	2	4	2	6	40	26	...	66
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	...	1	...	1	8	13	...	21
..	1	..	..	1	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	2	7	8	...	15
..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	2	1	3	7	12	...	19
..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	2	6	4	...	10
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	3	...	6
2	1	..	1	2	..	2	7	1	..	..	..	..	..	1	..	..	1	..	..	..	10	10	17	12	29	179	183	...	362

TABLE No. XV.

CLASS I.—

ORDER 1.—Miasmatic.

TOWNS IN GRAFTON COUNTY.	Carbuncle.	Cholera, Asiatic.	Cholera, Sporadic.	Cholera Infantum.	Cholera Morbus.	Croup (Pseudo-membranous).	Diphtheria.	Diarrhœa.	Dysentery.	Erysipelas.	Fever, Bilious.	Fever, Cerebro-spinal.	Fever, Intermittent.	Fever, Malarial.	Fever, Typhoid.	Fever, Typho-malarial.	Fever, Unspecified.	Fever, Yellow.	Influenza (Epidemic).	Measles.	Mumps.	Metria (Puerperal Fever).	Pertussis.
Alexandria																							
Ashland								1															
Bath																			2				
Benton																			2				
Bethlehem				2																			
Bridgewater															1								
Bristol				1														1					
Campton				1					1														
Canaan				1					1														
Dorchester																			1				
Easton																							
Ellsworth																							
Enfield													1							1			
Franconia																			1				
Grafton									1														
Groton																							
Hanover				2																			
Haverhill															6				1				
Hebron																							
Holderness																							
Landaff							1																
Lebanon				3		1	1												3				
Lincoln				2		1									1								
Lisbon				1															3				
Littleton				5					2						3								
Livermore																							
Lyman																							
Lyme																			1				1
Monroe				1	1				1														
Orange				1															1				
Orford																							1
Piermont																			1				
Plymouth				1			1	1							1								
Rumney															1				1				
Thornton								1							1								
Warren								1											1				
Waterville																							
Wentworth				1																			
Woodstock							1																
Total				22	1	2	5	9				1		14		1		18	1				2

—*Continued.*

ZYMOTIC DISEASES.

Tonsilitis.	Scarlatina.	Small-pox.	Varicella.	Total. M.	Total. F.	Order 2—Enthetic. Glanders.	Gonorrhea.	Hydrophobia.	Malignant Pustule.	Septicæmia.	Syphilis.	Total. M.	Total. F.	Order 3.—Dietic. Alcoholism.	Delirium Tremens.	Inanition.	Purpura and Scurvy.	Total. M.	Total. F.	Order 4.—Parasitic. Aphthæ.	Worms.	Other Parasites.	Total. M.	Total. F.	Total for Class I. Male.	Female.	Sex not stated.	Total
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	1	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2
..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2
..	3	..	..	3	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	2	..	5
..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2
..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2
..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	2
..	1	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	3
..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2
..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2
..	..	..	..	7	..	..	..	..	..	1	1	1	1	..	..	..	..	..	..	..	..	..	..	..	8	1	..	9
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	1	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	2
1	5	..	..	8	6	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	9	6	..	15
..	..	..	..	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	4
..	1	..	..	4	1	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	5	1	..	6
..	..	..	..	6	4	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	6	5	..	11
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2
..	..	..	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	3
..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2
..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
..	..	..	..	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	4
..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2
..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	2
..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	2
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
1	13	..	..	50	40	..	..	..	..	3	..	2	2	1	..	..	..	1	..	..	..	..	..	..	53	42	..	95

TABLE No. XV.

TOWNS IN GRAFTON COUNTY.	CLASS II.—CONSTITUTIONAL DISEASES.																								
	ORDER 1.—Diathetic.															ORDER 2.—Tubercular.								Total for Class II.		
	Gout.	Dropsy.	Anæmia.	Cancer, Various.	Cancer of Breast.	Cancer of Stomach.	Cancer of Uterus.	Noma (Canker).	Mortification.	Rheumatism.	Total.			Scrofula.	Tabes Mesenterica.	Phthisis.	Hydrocephalus.	Tubercular Meningitis.	Total.		Male.	Female.	Total.				
											M.	F.						M.	F.							
Alexandria	..	..	..	1	..	..	..	..	1	1	1	2	..	..	1	..	..	..	1	1	3	4				
Ashland	..	2	..	..	..	..	..	..	..	..	1	1	..	..	2	..	..	2	..	3	1	4				
Bath	..	..	..	1	..	..	..	..	..	1	..	2	..	..	..	..	..	..	..	..	2	2				
Benton	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..				
Bethlehem	..	..	..	2	..	..	..	..	..	..	2	..	..	..	..	1	..	1	..	3	..	3				
Bridgewater	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	1	2	1	2	3				
Bristol	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	4	..	3	1	4	1	5				
Campton	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	1	..	1				
Canaan	..	..	..	..	1	1	..	..	..	..	1	1	..	..	..	3	..	..	3	1	4	5				
Dorchester	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	1	..	1				
Easton	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..				
Ellsworth	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..				
Enfield	..	..	..	2	..	..	..	..	1	..	3	..	..	..	..	2	..	..	2	3	2	5				
Franconia	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	1	..	1	..	1	1	2				
Grafton	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	1	..	1	..	1	1	2				
Groton	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..				
Hanover	..	..	..	3	..	1	..	..	..	1	3	2	..	..	..	4	..	3	1	6	3	9				
Haverhill	..	..	..	1	..	..	1	..	..	..	1	1	..	..	..	3	..	1	2	2	3	5				
Hebron	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..				
Holderness	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..				
Landaff	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	1				
Lebanon	..	..	..	3	..	1	..	..	1	1	4	..	..	..	7	..	..	4	3	5	7	12				
Lincoln	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	1	..	1				
Lisbon	..	..	..	1	..	..	..	..	..	..	..	1	..	2	4	..	..	2	4	2	5	7				
Littleton	..	..	..	3	..	1	..	..	..	1	3	2	..	..	2	..	..	1	1	4	3	7				
Livermore	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	1	..	1				
Lyman	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..				
Lyme	..	..	..	1	..	..	..	..	1	..	..	2	..	..	3	..	..	1	2	1	4	5				
Monroe	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..				
Orange	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..				
Orford	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..				
Piermont	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	1	..	1				
Plymouth	..	..	..	1	..	..	..	..	..	..	..	1	..	..	1	..	..	1	..	2	..	2				
Rumney	..	..	..	1	..	..	..	..	1	..	2	..	..	..	2	..	..	2	2	2	2	4				
Thornton	..	..	..	2	..	..	..	..	..	..	1	1	..	..	2	..	..	2	1	3	1	4				
Warren	..	1	..	..	..	1	..	..	..	..	..	2	..	..	2	..	..	1	1	1	3	4				
Waterville	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..				
Wentworth	..	1	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	1	..	2	..	2				
Woodstock	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..				
Total	..	4	..	24	1	6	1	..	5	6	22	25	1	2	53	..	..	27	29	49	54	103				

—*Continued.*

CLASS III.—LOCAL DISEASES.

Order 1.—Nervous System.												Order 2.—Circulatory System.					Order 3.—Respiratory System.										
Cephalitis.	Cerebritis.	Apoplexy.	Paralysis.	Insanity.	Chorea.	Epilepsy.	Tetanus.	Convulsions.	Brain diseases.	Total.		Pericarditis.	Aneurism.	Heart Disease.	Total.		Epistaxis.	Laryngitis.	Bronchitis, Acute.	Bronchitis, Chronic.	Pleurisy.	Pneumonia.	Asthma.	Lung Diseases.	Total.	
										M.	F.				M.	F.								M.	F.
..	..	2	1	..	..	..	..	..	..	1	2	..	..	1	1	....	..	..	....	..	..	1	1	..	2	....
..	..	2	1	..	..	1	..	..	..	2	2	..	..	1	....	1	..	..	2	1	..	2	..	..	2	3
2	..	1	3	..	..	..	..	..	..	2	4	..	..	....	....	....	..	..	....	..	..	4	..	..	1	3
..	..	..	..	..	..	..	..	..	..	....	....	..	..	1	....	1	..	..	....	..	..	....	..	..	....	....
1	..	..	3	..	..	..	..	..	..	1	3	..	..	2	1	1	..	..	....	..	..	3	..	..	2	1
..	..	..	..	..	..	..	..	..	..	....	....	..	..	....	....	....	..	..	....	..	..	....	..	..	....	....
..	..	3	1	..	..	..	..	..	..	2	2	1	..	....	....	1	..	..	....	..	1	3	..	..	2	2
1	..	1	1	..	..	..	..	1	..	3	1	..	..	2	1	1	..	..	....	..	..	3	..	..	2	1
..	..	3	..	..	..	1	..	1	1	4	2	..	..	1	1	....	..	..	....	..	..	5	..	..	2	3
..	..	..	..	..	..	1	..	..	..	....	1	..	..	....	....	....	..	..	....	..	..	....	..	1	1	....
1	..	..	..	..	..	..	..	1	..	1	1	..	..	1	1	....	..	..	....	..	..	....	..	..	....	....
..	..	..	2	..	..	..	..	..	..	2	....	..	..	....	....	....	..	..	....	..	..	....	..	..	....	....
..	..	..	..	1	..	..	..	1	..	....	2	..	..	7	3	4	..	..	....	..	..	1	..	1	....	2
..	..	..	..	..	..	..	..	..	1	1	....	..	..	1	....	1	..	..	....	..	..	1	..	..	....	1
..	..	2	2	..	..	..	..	..	1	3	2	..	..	1	1	....	..	..	....	..	..	....	..	..	....	....
..	..	..	1	..	..	..	..	..	..	1	....	..	..	2	1	1	..	..	....	..	..	....	..	..	....	....
..	..	4	..	..	..	..	..	..	1	3	2	1	..	4	2	3	..	..	1	..	..	3	..	..	2	2
3	..	3	2	1	..	1	..	..	2	6	6	..	..	5	3	2	..	..	....	..	..	4	..	..	3	1
..	..	..	1	..	..	..	..	..	..	....	1	..	..	1	1	....	..	..	....	..	..	....	..	..	....	....
..	..	1	1	..	..	..	..	..	..	1	1	..	..	1	....	1	..	..	....	..	..	1	..	..	1	....
..	..	2	1	..	..	..	..	1	..	2	2	..	..	1	....	1	..	..	....	..	..	1	..	..	1	....
1	..	4	2	..	..	..	..	4	..	4	7	..	..	5	1	4	..	..	....	1	1	14	..	..	8	8
..	..	..	..	..	..	..	..	..	..	....	....	..	..	....	....	....	..	..	....	..	..	....	..	..	....	....
..	1	1	3	1	..	..	..	..	1	4	3	..	..	4	3	1	..	..	....	..	..	3	..	1	....	4
1	1	..	3	..	..	..	..	1	1	5	2	..	..	1	1	....	..	..	2	1	..	11	..	..	8	6
..	..	..	..	..	..	..	..	..	..	....	....	..	..	....	....	....	..	..	....	..	..	....	..	..	....	....
1	..	1	..	..	..	..	..	..	..	1	1	..	..	1	1	....	..	..	....	..	..	2	..	..	....	2
..	..	2	1	..	..	..	..	..	..	2	1	..	..	6	5	1	..	..	....	..	..	1	..	..	....	1
..	..	..	..	..	..	..	..	..	..	....	....	..	..	1	....	1	..	..	....	..	..	....	..	..	....	....
..	..	..	..	..	..	..	..	..	..	....	....	..	..	....	....	....	..	..	....	..	..	....	..	..	....	....
..	..	1	1	..	..	..	..	..	..	....	2	..	..	1	....	1	..	..	2	1	..	1	..	..	2	2
..	..	..	..	..	..	..	..	..	1	1	....	..	..	1	....	1	..	..	....	..	..	....	..	..	....	....
1	..	2	1	..	..	..	..	1	1	3	3	..	..	2	....	2	..	..	....	1	..	1	..	..	1	1
..	..	..	..	..	..	..	..	..	..	....	....	..	..	3	3	....	..	..	....	..	..	1	..	..	....	1
..	..	1	..	..	..	..	..	..	..	1	....	..	1	2	....	3	..	..	....	..	..	1	..	..	1	....
..	..	1	..	..	..	..	..	..	..	....	1	..	..	....	....	....	..	..	....	..	..	1	..	..	....	1
..	..	..	..	..	..	..	..	..	..	....	....	..	..	....	....	....	..	..	....	..	..	....	..	..	....	....
..	..	..	..	..	..	..	..	..	..	....	....	..	..	2	1	1	..	..	....	..	..	2	..	..	2	....
..	..	1	..	..	..	..	..	..	..	1	....	..	..	....	....	....	..	..	1	..	..	1	..	..	2	....
12	2	38	31	3	..	4	..	11	10	57	54	2	1	61	31	33	..	..	8	5	2	71	1	3	45	45

TABLE No. XV.

CLASS III.—LOCAL

ORDER 4.—Digestive Organs.

TOWNS IN GRAFTON COUNTY.	Gastritis.	Enteritis.	Peritonitis.	Ascites.	Ulceration of Intestines.	Hernia.	Ileus.	Intussusception.	Stricture of Intestines.	Fistula.	Stomach Diseases.	Pancreas Diseases.	Hepatitis.	Jaundice.	Liver Diseases.	Spleen Diseases.	Bowel Diseases.	Total. M.	Total. F.
Alexandria				1									1					1	1
Ashland			1																1
Bath			1																1
Benton																			
Bethlehem											1		1					2	
Bridgewater	1																		1
Bristol	3	1													1			4	1
Campton																			
Canaan							1								2			3	
Dorchester																			
Easton																			
Ellsworth																			
Enfield																			
Franconia																			
Grafton																			
Groton																			
Hanover			2															1	1
Haverhill	1	1		1														1	2
Hebron																			
Holderness																			
Landaff																			
Lebanon																	1		1
Lincoln																			
Lisbon	2	2									1				2			2	5
Littleton	1		1								1				2				5
Livermore																			
Lyman											1							1	
Lyme																			
Monroe															1			1	
Orange																			
Orford											1				1			1	1
Piermont																			
Plymouth											1								1
Rumney	1																		1
Thornton		1																1	
Warren																			
Waterville																			
Wentworth											1							1	
Woodstock													1						1
Total	9	5	5	2			1				7		3		9		1	19	23

—*Continued.*

DISEASES.—*Continued.*

Order 5.—Urinary Organs.											Order 6.—Generative Organs.		Order 7.—Osseous and Locomotory System.				Order 8.—Integumentary System.				Total for Class III.			
Nephritis.	Ischuria.	Nephria (Bright's Disease).	Diabetes.	Calculus (Gravel, etc.)	Cystitis.	Prostate, Disease of.	Kidney Diseases.	Bladder, Diseases of.	Testicles, Disease of.	Total.			Bones, Diseases of.	Joint Diseases.	Vertebræ, Diseases of.	Total.	Phlegmon.	Ulcer.	Skin Diseases.	Total.	Male.	Female.	Sex not stated.	Total.
M.	F.																							
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	3	..	8
..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	4	8	..	12
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	8	..	11
..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	2	..	2
1	..	1	1	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	9	5	..	14
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	9	6	..	15
..	1	1	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	8	3	..	11
2	..	1	..	..	..	..	..	..	..	2	1	..	..	..	..	..	..	..	..	..	12	6	..	18
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	3
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	2
1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	4	8	..	12
..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	1	3	..	4
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	2	..	6
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	3
1	..	1	..	..	1	..	..	..	..	1	2	..	..	..	..	..	..	..	..	..	9	10	..	19
..	..	1	..	..	..	..	1	..	..	1	1	..	..	..	..	..	..	..	..	..	14	12	..	26
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2
..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	3	2	..	5
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	3	..	6
..	..	2	..	..	..	..	4	..	..	4	2	..	..	..	..	..	..	..	..	..	17	22	..	39
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	1	..	1
..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	10	13	..	23
..	..	1	..	..	1	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	16	13	..	29
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	3	..	6
..	..	2	1	..	..	..	..	..	..	2	1	..	..	..	..	..	..	..	..	..	9	4	..	13
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	4	6	..	10
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2
1	..	1	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	5	8	..	13
..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	4	2	..	6
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	3	..	6
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	2
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	5	1	..	6
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	1	..	4
6	1	13	2	..	4	..	9	1	..	25	11	..	..	..	..	..	..	1	..	1	177	167	..	344

TABLE No. XV.

TOWNS IN GRAFTON COUNTY.	CLASS IV.—DEVELOPMENTAL DISEASES.																				
	ORDER 1.—Of Children.										ORDER 2.—Of Women.			ORDERS 3 and 4.				Total for Class IV.			
	Still-born.	Debility, Infantile.	Premature Birth.	Cyanosis.	Spina Bifida.	Other Malformations.	Teething.	Innutrition.	Total.		Childbirth.	Paramenia.	Total.	Old Age.		Atrophy and Debility.		Male.	Female.	Total.	
									M.	F.				M.	F.	M.	F.				
Alexandria	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	1	1	2	
Ashland	1	..	1	..	..	..	..	..	1	1	..	..	..	..	1	..	..	1	2	3	
Bath	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	1	
Benton	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Bethlehem	..	..	1	..	..	..	..	..	1	..	..	..	..	1	..	..	..	2	..	2	
Bridgewater	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Bristol	..	1	..	..	..	..	..	..	..	1	..	..	..	2	1	..	..	2	2	4	
Campton	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	3	3	
Canaan	..	..	..	..	..	..	..	2	1	1	..	..	..	4	1	1	1	6	3	9	
Dorchester	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	1	
Easton	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Ellsworth	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Enfield	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	1	
Franconia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Grafton	3	..	..	..	..	..	..	1	1	3	..	..	..	..	..	1	2	2	5	7	
Groton	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	1	
Hanover	..	..	..	..	..	..	..	1	1	..	..	..	..	..	1	..	..	1	1	2	
Haverhill	..	..	..	..	..	..	..	..	..	..	..	..	..	7	8	1	..	8	8	16	
Hebron	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	1	
Holderness	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	1	
Landaff	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1	
Lebanon	..	2	1	..	..	..	..	..	2	1	..	..	..	..	4	1	..	3	5	8	
Lincoln	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1	
Lisbon	..	..	1	..	..	..	..	..	1	..	..	..	..	2	..	..	..	3	..	3	
Littleton	2	..	1	..	..	..	..	..	2	1	..	..	..	2	..	..	..	4	1	5	
Livermore	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Lyman	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1	
Lyme	..	..	..	..	..	..	..	..	..	..	1	..	1	1	1	..	..	1	2	3	
Monroe	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Orange	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1	
Orford	..	..	..	..	1	..	..	2	1	2	..	..	..	..	1	..	..	1	3	4	
Piermont	..	..	1	..	..	..	..	..	1	..	..	..	..	..	2	..	..	1	2	3	
Plymouth	..	..	1	1	..	..	..	..	1	1	..	..	..	1	2	..	..	2	3	5	
Rumney	1	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	2	2	
Thornton	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1	
Warren	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	1	1	2	
Waterville	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Wentworth	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	1	
Woodstock	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Total	9	3	8	1	1	..	..	6	14	14	1	..	1	24	33	5	4	43	52	95	

—*Continued.*

CLASS V.—VIOLENT DEATHS.																																		Grand Total for all Classes.
Order 1.—Accident and Negligence.										Order 2.		Order 3.—Suicide.										Order 4.—Various.				Total for Class V.								
Fractures and Contusions.	Wounds, Unspecified.	Burns and Scalds.	Poison.	Drowning.	Suffocation.	Various.	Total.			Homicide.		Wounds, Unspecified.	Wounds, Pistol or Gunshot.	Wounds, Knife.	Poison.	Drowning.	Hanging.	Otherwise.	Total.			Violent, not Classed.		Cause not Reported or Unclassified.		Male.	Female.	Total.			Males.	Females.	Not stated.	Total.		
							M.	F.	M.	F.								M.	F.	M.	F.	M.	F.												
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7	7	..	14	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9	12	..	21	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	12	..	16	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	4	..	7	..	..
..	..	..	..	1	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	4	1	5	19	7	..	26	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	3	..	5	..	..
..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	17	10	..	27	..	..
..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	2	2	4	11	10	..	21	..	..
..	..	..	..	..	..	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	1	6	1	7	25	17	..	42	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	1	..	5	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	4	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	2	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	1	..	8	13	..	21	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	4	..	7	..	..
..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	1	2	..	9	9	..	18	..	..
..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	2	..	4	2	..	6	..	..
..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	18	15	..	33	..	..
..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	1	..	2	1	3	34	25	..	59	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	1	..	1	3	1	..	4	..	..
..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	2	1	3	5	4	..	9	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	7	..	10	..	..
1	..	..	..	1	..	..	1	1	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	2	1	3	36	41	..	77	..	..
..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	4	4	..	8	..	..
..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	21	19	..	40	..	..
..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	2	7	2	9	37	24	..	61	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	4	..	7	..	..
..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	2	3	13	13	..	26	..	..
..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	3	3	..	6	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	1	1	3	..	4	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	1	7	9	..	16	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	4	..	7	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	1	2	10	16	..	26	..	..
..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	8	7	..	15	..	..
..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	1	2	5	10	..	15	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	1	2	3	5	8	..	13	..	..
1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	1	..	..	1	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	2	..	10	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	2	..	6	..	..
2	1	2	..	5	2	9	17	4	..	..	..	..	..	..	..	1	2	2	1	..	..	..	..	21	14	40	19	59	362	334	..	696	..	..

TABLE No. XV.

CLASS I.

ORDER 1.—Miasmatic.

TOWNS IN COÖS COUNTY.	Carbuncle.	Cholera, Asiatic.	Cholera, Sporadic.	Cholera Infantum.	Cholera Morbus.	Croup (Pseudo-membranous).	Diphtheria.	Diarrhœa.	Dysentery.	Erysipelas.	Fever, Bilious.	Fever, Cerebro-spinal.	Fever, Intermittent.	Fever, Malarial.	Fever, Typhoid.	Fever, Typho-malarial.	Fever, Unspecified.	Fever, Yellow.	Influenza (Epidemic).	Measles.	Mumps.	Metria (Puerperal Fever).	Pertussis.
Berlin	..	..	..	36	2	....	....	1	1	1	1	..	..	..	5	..	1	..	....	8	..	..	..
Carroll	..	..	..	....	..	....	....	....	....	..	..	..	..	..	..	..	..	..	....	..	..	..	..
Clarksville	..	..	..	....	..	....	....	....	....	..	..	..	..	..	..	..	..	..	....	1	..	..	..
Colebrook	..	..	..	....	..	....	....	1	....	..	..	..	..	..	..	..	..	..	1	..	..	..	..
Columbia	..	..	..	....	..	....	....	....	....	..	..	..	..	..	..	..	..	..	....	..	..	1	..
Dalton	..	..	..	....	..	....	....	....	....	..	..	..	..	..	..	..	..	..	....	..	..	..	..
Dummer	..	..	..	....	..	....	....	....	....	..	..	..	..	..	1	..	..	..	....	..	..	..	..
Errol	..	..	..	....	..	....	....	....	....	..	..	..	..	..	..	..	..	..	....	..	..	..	..
Gorham	..	..	..	1	..	1	....	....	....	..	..	..	..	..	1	..	..	..	....	..	..	..	..
Jefferson	..	..	..	....	..	....	2	....	....	..	..	..	..	..	1	..	..	..	....	..	..	..	1
Lancaster	..	..	..	....	..	....	....	....	....	1	..	..	..	1	1	..	..	..	....	..	..	..	..
Milan	..	..	..	....	..	....	....	....	....	..	..	..	..	..	..	..	..	..	....	..	..	..	..
Millsfield	..	..	..	....	..	....	....	....	....	..	..	..	..	..	..	..	..	..	....	..	..	..	..
North'mberl'd	..	..	..	....	..	....	....	....	....	..	..	..	..	..	1	..	..	..	....	1	..	..	..
Pittsburg	..	..	..	....	..	....	....	....	....	..	..	..	..	..	1	..	1	..	1	..	..	..	..
Randolph	..	..	..	....	..	....	....	....	....	..	..	..	..	..	..	..	..	..	....	..	..	..	..
Shelburne	..	..	..	....	..	....	....	....	....	..	..	..	..	..	..	..	..	..	....	..	..	..	..
Stark	..	..	..	....	..	....	....	....	....	..	..	..	..	..	..	..	..	..	....	..	..	..	..
Stratford	..	..	..	1	..	....	....	1	1	..	..	..	..	..	..	..	1	..	....	..	..	..	..
Stewartstown	..	..	..	....	1	....	....	1	....	..	..	..	..	..	..	..	..	..	....	..	..	..	..
Whitefield	..	..	..	2	..	....	....	....	1	..	..	..	..	..	..	..	..	..	....	3	..	..	..
Total	..	..	..	40	3	1	2	4	3	2	1	..	..	1	11	..	3	..	2	13	..	1	1

—*Continued.*

ZYMOTIC DISEASES.

Tonsilitis.	Scarlatina.	Small-pox.	Varicella.	Order 2—Enthetic.										Order 3.—Dietic.						Order 4.—Parasitic.						Total for Class I.			
				M.	F.	Total.	Glanders.	Gonorrhœa.	Hydrophobia.	Malignant Pustule.	Septicæmia.	Syphilis.	M.	F.	Total.	Alcoholism.	Delirium Tremens.	Inanition.	Purpura and Scurvy.	M.	F.	Total.	Aphthæ.	Worms.	Other Parasites.	M.	F.	Total.	Male.	Female.	Sex not stated.	Total.
..	..	..	..	28	28	..	..	1	..	..	1	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	28	30	..	58
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.....
..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	2
..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.....
..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.....
..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	3
..	..	..	..	1	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	3	..	4
..	..	..	..	2	1	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	1	..	4
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.....
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.....
..	1	..	..	2	1	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	4
..	1	..	..	1	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	3	..	4
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.....
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.....
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.....
..	..	..	..	1	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	3	..	4
..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2
..	..	..	..	3	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	3	..	6
..	2	..	..	43	47	..	1	..	..	..	3	..	1	3	..	..	..	..	..	..	..	..	..	..	..	..	..	44	50	..	94

TABLE No. XV.

| TOWNS IN COÖS COUNTY. | CLASS II.—CONSTITUTIONAL DISEASES. | | |

—*Continued.*

CLASS III.—LOCAL DISEASES.

Order 1.—Nervous System.													Order 2.—Circulatory System.						Order 3.—Respiratory System.											
Cephalitis.	Cerebritis.	Apoplexy.	Paralysis.	Insanity.	Chorea.	Epilepsy.	Tetanus.	Convulsions.	Brain diseases.	Total.			Pericarditis.	Aneurism.	Heart Disease.	Total.			Epistaxis.	Laryngitis.	Bronchitis, Acute.	Bronchitis, Chronic.	Pleurisy.	Pneumonia.	Asthma.	Lung Diseases.	Total.		
										M.	F.					M.	F.										M.	F.	
4	1	..	2	..	..	..	..	3	..	6	4		..	..	3	2	1		..	..	..	..	..	22	..	..	14	8	
..	..	1	..	..	..	..	..	..	..	1	....		..	..	....	....	....		..	..	..	..	..	3	..	..	2	1	
..	..	..	..	..	..	..	..	..	..	....	....		..	..	1	....	1		..	..	..	..	..	....	..	..	....	....	
1	..	..	1	..	..	..	..	..	1	2	1		..	..	1	1	....		..	..	..	..	..	3	..	..	2	1	
..	..	2	1	..	..	..	..	..	1	2	2		..	..	1	....	1		..	..	..	..	..	....	..	..	....	....	
..	..	1	..	..	..	..	..	..	..	....	1		..	..	....	....	....		..	..	..	..	..	4	..	..	1	3	
..	..	..	..	..	..	..	..	..	..	....	....		..	..	....	....	....		..	..	..	..	..	....	..	..	....	....	
..	..	..	..	..	..	..	..	..	..	....	....		..	..	....	....	....		..	..	..	..	..	....	..	..	....	....	
..	..	2	..	..	..	..	..	..	..	1	1		..	..	2	2	....		..	..	..	..	..	3	..	..	2	1	
..	1	..	..	..	..	..	..	..	..	1	....		..	..	....	....	....		..	..	..	..	..	2	..	..	1	1	
..	..	1	1	..	..	..	..	..	1	1	2		..	..	4	3	1		..	..	..	..	..	3	..	1	3	1	
..	..	..	..	..	..	..	..	1	..	1	....		..	..	....	....	....		..	..	..	..	..	2	..	..	2	....	
..	..	..	..	..	..	..	..	..	..	....	....		..	..	....	....	....		..	..	..	..	..	....	..	..	....	....	
3	..	2	..	..	..	..	..	..	1	3	3		..	..	....	....	....		..	..	..	..	..	1	..	1	1	1	
..	..	..	..	..	..	..	..	..	..	....	....		..	..	....	....	....		..	..	..	..	1	1	..	..	2	....	
..	..	..	..	..	..	..	..	..	..	....	....		..	..	1	....	1		..	..	..	..	..	....	..	..	....	....	
..	..	..	..	..	..	..	..	..	..	....	....		..	..	1	....	1		..	..	..	..	..	....	..	..	....	....	
1	..	2	..	..	..	..	..	..	..	2	1		..	..	2	1	1		..	..	....	..	..	....	..	..	....	....	
3	..	1	..	..	..	1	..	..	1	3	3		..	..	2	1	1		..	..	1	..	..	2	..	..	2	1	
2	..	..	..	..	1	..	..	1	..	1	3		..	..	1	1	....		..	..	....	1	..	....	..	..	1	....	
1	..	..	..	..	..	..	..	..	..	1	....		2	..	4	4	2		..	1	....	..	1	2	..	1	2	3	
15	2	12	5	..	1	1	..	5	5	25	21		2	..	23	15	10		..	1	1	1	2	48	..	3	35	21	

TABLE No. XV.

CLASS III.—LOCAL

ORDER 4.—Digestive Organs.

TOWNS IN COÖS COUNTY.	Gastritis.	Enteritis.	Peritonitis.	Ascites.	Ulceration of Intestines.	Hernia.	Ileus.	Intussusception.	Stricture of Intestines.	Fistula.	Stomach Diseases.	Pancreas Diseases.	Hepatitis.	Jaundice.	Liver Diseases.	Spleen Diseases.	Bowel Diseases.	Total	
																		M.	F.
Berlin	..	2	....	....	..	..	..	..	..	..	2	..	....	....	....	..	....	2	2
Carroll	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Clarksville	1	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	1	....
Colebrook	..	....	2	....	..	..	..	..	..	..	..	..	....	....	1	..	....	1	2
Columbia	1	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	1
Dalton	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Dummer	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Errol	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Gorham	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Jefferson	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	1	....	1
Lancaster	..	....	1	....	..	..	..	..	..	..	2	..	....	....	....	..	....	3	....
Milan	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Millsfield	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Northumberland	..	....	1	....	..	..	..	..	..	..	..	..	....	....	....	..	....	1	....
Pittsburg	..	....	....	....	..	1	..	..	..	..	..	..	....	....	1	..	....	2	....
Randolph	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Shelburne	..	....	....	....	..	..	..	..	..	..	..	..	....	....	....	..	....	....	....
Stark	..	1	1	....	..	..	..	..	..	..	..	..	....	....	....	..	....	2	....
Stratford	..	....	1	....	..	..	..	..	..	..	..	..	....	....	....	..	....	1	....
Stewartstown	..	1	1	....	..	..	..	..	..	..	..	..	....	....	....	..	....	2	....
Whitefield	..	1	....	....	..	..	1	..	..	..	..	..	....	....	....	..	....	2	....
Total	2	5	7	....	..	1	1	..	..	..	4	..	....	....	2	..	1	17	6

—*Continued.*

DISEASES.—*Continued.*

Order 5.—Urinary Organs.													Order 6.—Generative Organs.			Order 7.—Osseous and Locomotory System.				Order 8.—Integumentary System.				Total for Class III.			
Nephritis.	Ischuria.	Nephria (Bright's Disease).	Diabetes.	Calculus (Gravel, etc.).	Cystitis.	Prostate, Disease of.	Kidney Diseases.	Bladder, Diseases of.	Testicles, Disease of.	M.	F.	Total.	Ovarian Dropsy.	Disease of Uterus.	Total.	Bone, Diseases of.	Joint Diseases.	Vertebræ, Diseases of.	M.	F.	Total.	Phlegmon.	Ulcer.	Skin Diseases.	M.	F.	Total.	Male.	Female.	Sex not stated.	Total.
..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	2	..	..	1	1	..	..	..	..	..	..	..	25	17	..	42
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	1	..	4
2	..	..	..	..	..	..	..	..	..	1	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	4
..	..	..	..	..	..	..	1	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7	4	..	11
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	4	..	6
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	4	..	5
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	2	..	7
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	4
..	..	..	..	..	1	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11	4	..	15
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	3
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	5	..	10
..	1	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..	..	5
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	2	..	7
..	..	..	..	..	..	..	2	..	..	2	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9	5	..	14
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	6	3	..	9
1	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10	5	..	15
3	..	1	..	..	1	..	4	1	..	7	3	10	..	..	..	2	..	..	1	1	2	1	..	1	..	..	1	101	62	..	163

TABLE No. XV.

TOWNS IN CÖOS COUNTY.	CLASS IV.—DEVELOPMENTAL DISEASES.																				
	ORDER 1.—Of Children.									ORDER 2.—Of Women.			ORDERS 3 and 4.				Total for Class IV.				
	Still-born.	Debility, Infantile.	Premature Birth.	Cyanosis.	Spina Bifida.	Other Malformations.	Teething.	Innutrition.	Total.				Childbirth.	Paramenia.	Total.	Old Age.		Atrophy and Debility.		Male.	Female.	Total.
									M.	F.					M.	F.	M.	F.			
Berlin	..	12	4	..	..	..	..	1	12	5	..	..	..	..	1	....	....	....	13	5	18
Carroll	..	..	..	..	..	..	..	..	....	....	..	..	..	..	....	....	....	....	....	....	....
Clarksville	..	..	..	..	..	..	..	..	....	....	..	..	..	..	1	....	....	....	1	....	1
Colebrook	..	..	..	..	..	..	..	..	....	....	..	..	..	..	2	1	....	....	2	1	3
Columbia	..	..	..	..	..	..	..	..	....	....	..	..	..	..	....	2	....	....	....	2	2
Dalton	..	..	..	..	..	..	..	..	....	....	..	..	..	..	....	....	....	....	....	....	....
Dummer	..	..	..	..	..	..	..	..	....	....	..	..	..	..	....	....	....	....	....	....	....
Errol	..	..	..	..	..	..	..	..	....	....	..	..	..	..	....	....	....	....	....	....	....
Gorham	..	..	..	..	..	..	..	..	....	....	..	..	..	..	....	....	....	....	....	....	....
Jefferson	1	..	..	..	..	..	..	..	1	....	..	..	..	..	....	....	....	....	1	....	1
Lancaster	..	..	1	..	..	..	..	..	1	....	..	..	..	..	2	4	....	....	3	4	7
Milan	..	..	..	..	..	..	..	..	....	....	..	..	..	..	....	....	....	....	....	....	....
Millsfield	..	..	..	..	..	..	..	..	....	....	..	..	..	..	....	....	....	....	....	....	....
Northumberla'd	..	..	..	..	..	..	1	1	....	2	..	..	..	..	1	2	....	....	1	4	5
Pittsburg	..	..	..	..	..	..	..	..	....	....	..	..	..	..	....	....	....	....	....	....	....
Randolph	..	..	..	..	..	..	..	..	....	....	..	..	..	..	....	....	....	....	....	....	....
Shelburne	..	..	..	..	..	..	..	..	....	....	..	..	..	..	....	....	....	....	....	....	....
Stark	..	..	..	..	..	..	..	..	....	....	..	..	..	..	....	....	....	....	....	....	....
Stratford	1	..	..	..	..	..	..	..	....	1	..	..	..	..	....	1	....	....	....	2	2
Stewartstown	..	..	..	..	..	..	..	1	....	1	..	..	..	..	1	2	2	2	3	5	8
Whitefield	1	..	..	..	..	..	..	..	1	....	..	..	..	..	....	....	1	....	2	....	2
Total	3	12	5	..	..	..	1	3	15	9	..	..	..	..	8	12	3	2	26	23	49

—*Continued.*

CLASS V.—VIOLENT DEATHS.																																Grand Total for all Classes.			
Order 1.—Accident and Negligence.								Order 2.		Order 3.—Suicide.										Order 4.—Various.				Total for Class V.											
Fractures and Contusions.	Wounds, Unspecified.	Burns and Scalds.	Poison.	Drowning.	Suffocation.	Various.	Total.			Wounds, Unspecified.	Wounds, Pistol or Gunshot.	Wounds, Knife.	Poison.	Drowning.	Hanging.	Otherwise.	Total.			Violent, not Classed.		Cause not Reported or Unclassified.		Male.		Female.		Total.		Male.		Female.		Not stated.	Total.
							M.	F.	Homicide.								M.	F.					M.	F.	M.	F.	M.	F.	M.	F.	M.	F.		
1			1	1		1	3	1														5	3	8	4	12		81		61		1*	143
						1	1																	1		1		4		2			6
																												3		3			6
																						1	1	1	1	2		12		10			22
																												2		7			9
																						1	1	1	1	2		2		5			7
																												1					1
				1			1																	1		1		10		2			12
						1	1															1		2		2		5		6		1*	12
1						1	2															1		3		3		22		18			40
																						2	1	2	1	3		4		1		1*	6
																1		1							1	1		10		15			25
				1			1															2		3		3		9		5			14
																								1		1		1		2			2
																								1		1		1		2			2
						1	1																		1			6		2			8
						1	1															2	1	2		3		13		15			28
						1	1				1					1								2		2		14		9			23
						1	1															1	1	1	1	2		16		12		1*	29
2		1	3			8	13	1			1					1	1	1				13	11	27	13	40		214		177		4	395

* Classed with males.

TABLE No. XV.

RECAPITULATION.

COUNTIES.	CLASS I.— Order 1.—Miasmatic.																								
	Carbuncle.	Cholera, Asiatic.	Cholera, Sporadic.	Cholera Infantum.	Cholera Morbus.	Croup (Pseudo-membranous).	Diphtheria.	Diarrhœa.	Dysentery.	Erysipelas.	Fever, Bilious.	Fever, Cerebro-spinal.	Fever, Intermittent.	Fever, Malarial.	Fever, Typhoid.	Fever, Typho-malarial.	Fever, Unspecified.	Fever, Yellow.	Influenza (Epidemic).	Measles.	Mumps.	Metria (Puerperal Fever).	Pertussis.	
Rockingham	..	..	..	36	2	11	16	5	6	5	1	..	..	..	6	..	1	..	9	..	..	1	3	
Strafford	1	..	..	39	4	4	9	2	6	2	..	..	..	..	18	..	2	..	2	..	..	1	1	
Belknap	..	..	..	25	1	1	6	1	2	2	..	..	..	..	4	..	..	..	7	..	..	..	1	
Carroll	..	..	.	7	..	2	1	3	1	1	..	..	..	..	2	..	..	..	6	1	..	1	..	
Merrimack	..	..	..	51	3	4	18	9	8	6	..	1	..	..	13	..	..	..	17	1	..	5	7	
Hillsborough	1	..	..	161	4	7	5	17	17	8	2	1	..	2	24	..	..	..	17	4	..	1	6	
Cheshire	..	..	..	22	1	6	4	2	11	3	1	..	..	..	5	..	..	..	5	5	..	2	1	
Sullivan	..	..	..	20	1	..	..	2	..	..	..	1	..	..	6	1	1	..	8	..	..	1	1	
Grafton	..	..	..	22	1	..	2	5	9	..	..	..	1	..	14	..	1	..	18	1	..	..	2	
Coös	..	..	..	40	3	1	2	4	3	2	1	..	..	1	11	..	3	..	2	13	..	1	1	
Total	2	..	..	423	20	36	63	50	63	29	5	3	1	3	103	1	8	.	91	32	..	13	23	

—Continued.

BY COUNTIES.

ZYMOTIC DISEASES.

						Order 2.—Enthetic.									Order 3—Dietic.					Order 4.—Parasitic.					Total for Class I.			
Tonsilitis.	Scarlatina.	Small-pox.	Varicella.	Total.		Glanders.	Gonorrhœa.	Hydrophobia.	Malignant Pustule.	Septicæmia.	Syphilis.	Total.			Alcoholism.	Delirium Tremens.	Inanition.	Purpura and Scurvy.	Total.		Aphthæ.	Worms.	Other Parasites.	Total.			Male.	Female.	Sex not stated.	Total.
				M.	F.							M.	F.						M.	F.				M.	F.					
1	3	..	..	60	46	..	..	..	..	12	..	7	5		3	..	..	1	3	1	..	..	..	..	..	..		70	52	..	122
..	5	..	..	42	54	..	..	..	..	..	..	..	..		3	..	..	..	2	1	..	..	..	..	..	..		44	55	..	99
..	11	..	..	40	28	..	..	..	..	..	..	..	..		..	..	..	..	..	..	..	..	..	..	..	..		40	28	..	68
..	5	..	..	18	12	..	..	..	..	1	..	..	1		1	..	..	..	1	..	..	..	..	..	..	..		19	13	..	32
1	1	..	..	66	79	..	..	..	..	8	..	6	2		..	..	..	..	..	..	..	..	..	..	..	..		72	81	..	153
..	9	..	..	140	146	..	..	..	..	9	2	2	9		6	1	..	..	7	..	..	1	..	..	..	1		149	156	..	305
..	1	..	..	39	30	..	..	..	..	4	..	2	2		..	..	..	..	..	..	..	..	..	..	..	..		41	32	..	73
..	2	..	..	18	26	..	..	..	..	3	..	2	1		1	..	..	..	1	..	..	..	..	..	..	..		21	27	..	48
1	13	..	..	50	40	..	..	..	..	3	1	2	2		1	..	..	..	1	..	..	..	..	..	..	..		53	42	..	95
..	2	..	..	43	47	..	1	..	..	3	..	1	3		..	..	..	..	..	..	..	..	..	..	..	..		44	50	..	94
3	52	..	..	516	508	..	1	..	..	43	3	22	25		15	1	..	1	15	2	..	1	..	..	..	1		553	536	..	1089

TABLE No. XV.

RECAPITULATION

COUNTIES.	CLASS II.—CONSTITUTIONAL DISEASES.																						
	ORDER 1.—Diathetic.													ORDER 2.—Tubercular.							Total for Class II.		
	Gout.	Dropsy.	Anæmia.	Cancer, Various.	Cancer of Breast.	Cancer of Stomach.	Cancer of Uterus.	Noma (Canker).	Mortification.	Rheumatism.	Total.			Scrofula.	Tabes Mesenterica.	Phthisis.	Hydrocephalus.	Tubercular Meningitis.	Total.		Male.	Female.	Total.
											M.	F.							M.	F.			
Rockingham	..	11	5	32	5	4	1	..	4	1	21	42	2	..	113	6	3	66	58	87	100	187	
Strafford	..	6	4	17	1	6	..	..	..	5	15	24	1	..	78	4	3	44	42	59	66	125	
Belknap	..	4	2	12	..	3	1	..	3	..	11	14	1	3	47	..	2	18	35	29	49	78	
Carroll	..	3	1	8	1	1	..	..	1	..	9	6	1	2	36	1	2	22	20	31	26	57	
Merrimack	..	4	9	33	2	8	1	..	5	3	27	38	1	6	108	2	3	55	65	82	103	185	
Hillsborough	..	12	3	37	..	16	7	..	5	9	33	56	4	5	190	8	9	100	116	133	172	305	
Cheshire	..	2	2	20	..	5	1	..	3	2	13	22	1	1	48	1	2	25	28	38	50	88	
Sullivan	..	2	..	17	1	1	1	..	3	1	8	18	1	..	32	..	1	18	16	26	34	60	
Grafton	..	4	..	24	1	6	1	..	5	6	22	25	1	2	53	..	..	27	29	49	54	103	
Coös	..	1	..	9	..	..	..	..	1	..	3	8	1	2	32	1	2	17	21	20	29	49	
Total	..	49	26	209	11	50	13	..	30	27	162	253	14	21	737	23	27	392	430	554	683	1,237	

—*Continued.*

BY COUNTIES.

CLASS III.—LOCAL DISEASES.

Order 1.—Nervous System.												Order 2.—Circulatory System.					Order 3.—Respiratory System.										
Cephalitis.	Cerebritis.	Apoplexy.	Paralysis.	Insanity.	Chorea.	Epilepsy.	Tetanus.	Convulsions.	Brain Diseases.	Total.		Pericarditis.	Aneurism.	Heart Diseases.	Total.		Epistaxis.	Laryngitis.	Bronchitis, Acute.	Bronchitis, Chronic.	Pleurisy.	Pneumonia.	Asthma.	Lung Diseases.	Total.	
										M.	F.				M.	F.									M.	F.
21	6	40	39	1	..	4	..	4	18	68	65	..	1	112	62	51	..	2	27	..	2	88	2	3	58	66
19	9	24	20	1	..	..	..	5	9	46	41	1	..	58	30	29	..	3	14	1	..	65	3	2	38	50
10	..	12	24	..	..	1	..	5	4	26	30	1	..	23	14	10	..	..	5	2	..	31	1	1	17	23
6	5	19	15	1	..	2	..	2	4	21	33	1	..	33	14	20	..	..	4	2	2	19	..	..	12	15
19	5	47	36	13	..	3	..	12	32	90	77	3	1	71	33	42	..	1	26	8	6	95	5	6	78	69
34	12	97	39	3	..	4	..	25	27	120	121	10	1	121	77	55	..	1	63	5	8	159	6	3	119	126
18	10	21	21	..	..	3	..	5	7	44	41	1	..	66	36	31	..	3	9	3	2	64	1	1	46	37
2	1	21	9	4	..	1	..	2	6	20	26	3	..	37	17	23	..	..	4	3	2	45	..	2	28	28
12	2	38	31	3	..	4	..	11	10	57	54	2	1	61	31	33	..	..	8	5	2	71	1	3	45	45
15	2	12	5	..	1	1	..	5	5	25	21	2	..	23	15	10	..	1	1	1	2	48	..	3	35	21
156	52	331	239	26	1	23	..	76	122	517	509	24	4	605	329	304	..	11	161	30	26	685	19	24	476	480

TABLE No. XV.

RECAPITULATION

CLASS III.—LOCAL

ORDER 4.—Digestive Organs.

COUNTIES.	Gastritis.	Enteritis.	Peritonitis.	Ascites.	Ulceration of Intestines.	Hernia.	Ileus.	Intussusception.	Stricture of Intestines.	Fistula.	Stomach Diseases.	Pancreas Diseases.	Hepatitis.	Jaundice.	Liver Diseases.	Spleen Diseases.	Bowel Diseases.	Total.	
																		M.	F.
Rockingham	10	13	9	....	..	1	3	..	1	1	6	..	3	2	8	..	8	33	32
Strafford	3	7	10	4	..	3	..	2	1	..	3	..	3	2	8	..	1	24	23
Belknap	2	1	4	....	..	..	..	..	..	..	3	..	1	1	4	..	....	6	10
Carroll	3	4	3	....	..	2	..	..	..	..	4	..	....	....	3	..	5	10	14
Merrimack	5	12	14	1	2	2	4	..	..	..	2	..	4	3	6	..	4	24	35
Hillsborough	14	21	16	....	2	5	6	..	..	..	15	..	4	....	16	1	5	59	46
Cheshire	5	5	5	1	1	2	2	..	..	..	2	..	1	....	3	..	5	17	15
Sullivan	3	3	5	....	..	..	1	..	..	..	2	..	2	2	6	..	1	15	10
Grafton	9	5	5	2	..	..	1	..	..	..	7	..	3	....	9	..	1	19	23
Coös	2	5	7	....	..	1	1	..	..	..	4	..	....	....	2	..	1	17	6
Total	56	76	78	8	5	16	18	2	2	1	48	..	21	10	65	1	31	224	214

—*Continued.*

BY COUNTIES.

DISEASES.—*Continued.*

Order 5.—Urinary Organs.												Order 6.—Generative Organs.			Order 7.—Osseous and Locomotory System.				Order 8.—Integumentary System.			Total for Class III.			
Nephritis.	Ischuria.	Nephria (Bright's Disease).	Diabetes.	Calculus (Gravel, etc).	Cystitis.	Prostate, Disease of.	Kidney Disease.	Bladder, Diseases of.	Testicles, Disease of.	Total.		Ovarian Dropsy.	Disease of Uterus.	Total.	Bone, Diseases of.	Joint Diseases.	Vertebræ, Diseases of.	Total.		Phlegmon.	Ulcer.	Skin Diseases.	Total.		Males.	Females.	Sex not stated.	Total.
										M.	F.							M.	F.				M.	F.				
3	..	16	..	..	4	4	7	..	..	20	14	2	..	2	..	..	..	..	..	3	..	..	..	3	240	233	..	473
3	..	14	1	..	1	1	3	..	..	10	13	3	..	3	..	..	..	..	..	1	..	..	..	1	148	160	..	308
2	..	6	2	..	..	2	1	..	..	8	5	1	1	2	..	..	..	..	..	..	..	..	..	..	71	80	..	151
..	..	10	3	..	1	..	3	..	..	7	10	1	..	1	..	..	..	..	..	..	..	..	..	..	64	93	..	157
7	1	20	9	..	5	..	4	..	..	34	12	3	..	3	..	1	..	1	..	2	..	..	..	2	260	240	..	500
10	..	20	13	3	6	..	12	..	..	33	31	2	1	3	..	..	..	..	..	3	1	1	1	4	409	386	..	795
2	..	13	..	..	3	..	7	..	..	13	12	..	..	..	..	1	..	1	..	..	1	..	1	..	158	136	..	294
..	..	10	..	..	..	..	5	..	..	6	9	..	..	..	..	..	..	..	..	1	1	1	1	2	87	98	..	185
6	1	13	2	..	4	..	9	1	..	25	11	..	..	..	..	..	..	..	..	..	1	..	..	1	177	167	..	344
3	..	1	..	..	1	..	4	1	..	7	3	..	..	..	2	..	..	1	1	1	..	..	1	..	101	62	..	163
36	2	123	30	3	25	7	55	2	..	163	120	12	2	14	2	2	..	3	1	11	4	2	4	13	1715	1655	..	3370

TABLE No. XV.

RECAPITULATION

COUNTIES.	CLASS IV.—DEVELOPMENTAL DISEASES.																			
	ORDER 1.—Of Children.										ORDER 2.—Of Women.			ORDERS 3 and 4.				Total for Class IV.		
	Still-born.	Debility, Infantile.	Debility, Premature Birth.	Cyanosis.	Spina Bifida.	Other Malformations.	Teething.	Innutrition.	Total.		Childbirth, Paramenia.		Total.	Old Age.		Atrophy and Debility.		Male.	Female.	Total.
									M.	F.				M.	F.	M.	F.			
Rockingham..	28	1	10	2	1	3	..	14	36	23	4	..	4	24	41	16	9	76	77	153
Strafford.....	8	11	10	1	..	2	1	7	22	18	3	..	3	12	27	3	1	37	49	86
Belknap	9	1	4	1	..	2	..	4	11	10	3	..	3	14	9	2	2	27	24	51
Carroll.....	4	..	...	1	2	..	..	2	5	4	1	..	1	8	8	1	....	14	13	27
Merrimack....	23	15	21	1	1	1	1	16	32	47	..	..	..	21	38	4	10	57	95	152
Hillsborough.	97	40	35	1	..	2	8	42	132	93	8	1	9	18	53	7	13	157	168	325
Cheshire.....	13	2	2	2	..	..	1	5	14	11	1	..	1	24	15	4	7	42	34	76
Sullivan.....	9	5	7	1	..	2	..	1	20	5	1	..	1	7	6	1	....	28	12	40
Grafton.....	9	3	8	1	1	..	..	6	14	14	1	..	1	24	33	5	4	43	52	95
Coös.....	3	12	5	..	..	..	1	3	15	9	...	..	...	8	12	3	2	26	23	49
Total.....	203	90	102	11	5	12	12	100	301	234	22	1	23	160	242	46	48	507	547	1054

—*Continued.*

BY COUNTIES.

CLASS V.—VIOLENT DEATHS.																														Grand Total for all Classes.
Order 1.—Accident and Negligence.									Order 2.		Order 3.—Suicide.									Order 4.—Various.				Total for Class V.							
Fracture and Contusions.	Wounds, Unspecified.	Burns and Scalds.	Poison.	Drowning.	Suffocation.	Various.	Total.		Homicide.		Wounds, Unspecified.	Wounds, Pistol or Gunshot.	Wounds, Knife.	Poison.	Drowning.	Hanging.	Otherwise.	Total.		Violent, not Classed.		Cause not Reported or Unclassified.		Male.	Female.	Total.	Male.	Female.	Not stated.	Total.	
							M.	F.	M.	F.								M.	F.			M.	F.								
6	1	4	2	5	..	12	23	7	...	...	...	...	...	1	..	2	2	4	1	...	...	29	34	56	42	98	525	504	4	1033
6	5	45	2	3	1	8	35	35	...	...	...	...	...	2	...	3	5	...	...	...	...	24	25	64	60	124	351	390	1	742
4	..	...	1	1	..	3	8	1	...	...	...	...	...	...	...	...	...	...	...	...	...	6	6	14	7	21	181	188	..	369
2	..	...	...	3	..	6	9	2	...	...	...	...	...	...	...	...	...	...	...	...	...	8	13	17	15	32	143	160	2	305
13	1	3	..	9	1	9	28	8	...	...	...	...	...	...	1	1	1	1	2	1	...	17	16	47	26	73	515	545	3	1063
11	4	2	4	15	4	30	50	20	...	...	...	...	...	1	2	4	2	5	4	...	...	140	154	195	178	373	1033	1060	10	2103
5	1	...	...	4	3	10	17	6	...	...	...	...	...	...	...	1	3	4	...	1	1	22	13	44	20	64	323	272	..	595
2	1	..	1	2	..	2	7	1	...	...	...	...	...	...	1	.	...	...	1	...	...	10	10	17	12	29	179	183	..	362
2	1	2	..	5	2	9	17	4	...	...	...	...	...	...	...	1	2	2	1	...	...	21	14	40	19	59	362	334	..	696
2	..	...	1	3	..	8	13	1	...	...	...	1	...	...	...	...	1	1	1	...	...	13	11	27	13	40	214	177	4	395
53	14	56	11	50	11	97	207	85	...	...	...	1	..	4	4	9	14	22	10	2	1	290	296	521	392	913	3826	3813	24	7663

TABLE No. XVI.

Recapitulation of the Causes of Death by Classes and Orders, by Counties, 1893.

CAUSES OF DEATH.	Rockingham.	Strafford.	Belknap.	Carroll.	Merrimack.	Hillsborough.	Cheshire.	Sullivan.	Grafton.	Coös.	Total for state.
All causes	1,033	742	369	305	1,063	2,103	595	362	696	395	7,663
Specified causes	970	693	357	284	1,030	1,809	560	342	661	371	7,077
Causes not stated or unclassified	63	49	12	21	33	294	35	20	35	24	586
CLASSES.											
I—Zymotic diseases	122	99	68	32	153	305	73	48	95	94	1,089
II—Constitutional diseases	187	125	78	57	185	305	88	60	103	49	1,237
III—Local diseases	473	308	151	157	500	795	294	185	344	163	3,370
IV—Developmental diseases	153	86	51	27	152	325	76	40	95	49	1,054
V—Violent deaths	35	75	9	11	40	79	29	9	24	16	327
ORDERS.											
I—1. Miasmatic	106	96	68	30	145	286	69	44	90	90	1,024
2. Enthetic diseases	12	.....	.....	1	8	11	4	3	4	4	47
3. Dietic diseases	4	3	.....	1	.....	7	.....	1	1	.....	17
4. Parasitic diseases	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1
II—1. Diathetic diseases	63	39	25	15	65	89	35	26	47	11	415
2. Tubercular diseases	124	86	53	42	120	216	53	34	56	38	822

III—1. Diseases of nervous system	133	87	56	54	167	241	85	46	111	46	1,026
2. Diseases of organs of circulation	113	59	24	34	75	132	67	40	64	25	633
3. Diseases of respiratory organs	124	88	40	27	147	245	83	56	90	56	956
4. Diseases of digestive organs	65	47	16	24	59	105	32	25	42	23	438
5. Diseases of urinary organs	34	23	13	17	46	64	25	15	36	10	283
6. Diseases of generative organs	2	3	2	1	3	3	1	.....	.....	.....	14
7. Diseases of osseous and locomotory organs	.....	.....	.....	.....	1	.....	1	.....	.....	2	4
8. Diseases of integumentary system	3	1	.....	.....	2	5	.....	3	1	1	17
IV—1. Developmental diseases of children	59	40	21	9	79	225	25	25	28	24	535
2. Developmental diseases of women	4	3	3	1	.....	9	1	1	1	.....	23
3. Old age	65	39	23	16	59	71	39	13	57	20	402
4. Atrophy and debility	25	4	4	1	14	20	11	1	9	5	94
V—1. Accident and negligence	30	70	9	11	37	70	25	8	21	14	295
2. Homicide	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
3. Suicide	5	5	.....	.....	3	9	4	1	3	2	32

TABLE No. XVII.

Deaths by Ages, Sex, and Months, by Counties and Towns.

(Not including premature births and still-births.)

TOWNS IN ROCKINGHAM COUNTY.		Under 1.	1 to 5.	5 to 10.	10 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 to 100.	Over 100.	Unknown.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Unknown.	Total.	Grand total.
Atkinson	Males	1	..	..	..	1	..	..	....	....	....	1	....	..	..	....	....	....	1	....	1	....	....	....	....	1	....	..	3	....
	Females	..	..	..	..	..	1	..	....	1	....	....	....	..	..	....	....	....	....	....	....	....	....	....	....	1	1	..	2	5
Auburn	Males	..	1	..	1	3	..	..	....	2	2	....	....	..	..	....	1	....	....	3	....	1	2	....	1	1	....	..	9	....
	Females	..	..	..	2	1	..	..	....	....	2	....	....	..	..	....	....	....	....	....	2	1	1	....	....	....	1	..	5	14
Brentwood	Males	1	1	..	1	1	3	2	2	7	4	2	....	..	..	....	3	1	3	....	1	3	3	2	3	1	4	..	24	....
	Females	2	..	..	..	1	..	1	3	4	2	2	1	..	..	1	1	....	1	....	....	1	4	....	2	2	4	..	16	40
Candia	Males	2	..	..	..	1	..	..	1	3	3	2	1	..	..	1	3	....	....	1	1	1	1	2	1	1	1	..	13	....
	Females	..	..	..	..	2	1	..	1	1	2	2	....	..	..	1	....	1	....	1	....	....	....	....	4	....	2	..	9	22
Chester	Males	..	..	..	..	1	..	..	1	1	1	1	1	..	..	2	....	....	1	....	1	....	....	....	1	1	....	..	6	....
	Females	1	..	..	..	..	1	..	1	1	....	2	2	..	..	1	1	....	....	1	1	1	2	....	....	....	1	..	8	14
Danville	Males	2	3	..	..	..	1	..	....	....	....	....	....	..	..	....	....	....	2	1	....	2	....	....	....	....	1	..	6	....
	Females	2	..	..	..	..	..	1	....	1	2	1	....	..	..	1	....	2	....	....	....	....	1	1	1	....	1	..	7	13
Deerfield	Males	1	..	..	..	..	1	..	....	....	3	3	1	..	..	....	....	2	....	1	1	1	1	1	1	....	1	..	9	....
	Females	1	..	..	1	1	1	..	2	2	3	2	....	..	..	....	1	....	....	....	....	2	1	1	3	3	2	..	13	....
	Not stated	1	..	..	..	..	..	..	....	....	....	....	....	..	..	....	....	....	....	....	....	....	....	....	....	....	....	1	1	23
Derry	Males	4	..	..	1	..	1	1	3	3	9	5	....	..	1	5	2	2	2	....	1	2	3	4	....	3	4	..	28	....
	Females	..	1	1	..	1	1	..	3	6	5	5	2	..	..	2	2	2	4	2	3	1	2	3	....	2	2	..	25	53
East Kingston	Males	2	..	..	1	..	..	..	....	1	4	1	....	..	..	....	1	1	....	2	....	1	....	1	....	2	1	..	9	....
	Females	..	..	..	..	..	..	..	....	....	1	1	....	..	..	....	....	....	....	....	....	1	....	....	....	....	1	..	2	11

Epping	Males	6	1	..	1	1	1	..	1	2	5	3	1	..	1	....	3	3	1	2	....	1	3	1	5	....	2	..	21	....	
	Females	4	2	..	1	1	3	1	2	....	1	....	1	..	1	1	....	2	1	1	3	2	....	1	3	2	1	..	17	38	
Exeter	Males	7	3	..	1	7	3	4	4	6	6	5	....	....	..	4	8	5	9	2	....	2	1	6	2	3	3	1	46	....	
	Females	9	..	1	3	1	2	6	9	5	6	8	2	....	..	4	8	4	5	6	2	4	8	2	1	2	6	..	52	98	
Fremont	Males	1	..	..	..	..	..	..	..	....	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	2	....	
	Females	2	..	..	..	..	..	1	..	....	2	1	..	..	..	1	1	1	..	..	1	..	..	..	..	1	1	..	6	8	
Greenland	Males	1	1	..	..	2	..	..	1	....	3	2	....	....	..	2	1	1	....	2	....	....	1	2	....	....	1	..	10	....	
	Females	..	..	..	..	..	1	..	....	1	2	2	....	....	..	1	....	1	....	....	1	....	1	....	1	....	1	..	6	16	
Hampstead	Males	..	..	..	..	..	..	..	..	....	1	1	1	....	..	..	....	1	....	....	....	....	1	1	....	....	....	..	3	....	
	Females	..	1	..	..	..	2	..	....	1	....	4	....	....	..	2	....	....	....	2	1	....	....	....	1	....	2	..	8	11	
Hampton	Males	..	..	..	..	..	..	..	..	....	2	3	....	....	..	1	....	1	....	1	1	....	1	....	....	2	....	..	6	....	
	Females	..	..	..	1	2	..	1	....	1	....	....	....	....	..	....	1	1	....	....	1	....	....	....	1	....	1	..	5	11	
Hampton Falls	Males	1	..	..	..	..	..	..	1	....	1	....	....	....	..	1	....	....	....	2	....	....	....	....	....	....	....	..	3	....	
	Females	..	..	..	..	..	1	..	....	....	....	1	1	....	..	1	2	....	....	....	....	....	....	....	....	....	....	..	3	6	
Kensington	Males	..	..	..	1	..	..	..	....	1	....	1	....	....	..	1	1	....	....	....	....	1	....	....	....	....	....	..	3	....	
	Females	..	..	..	1	..	..	..	....	1	....	2	....	....	..	1	....	1	....	....	....	....	....	1	1	....	....	..	4	7	
Kingston	Males	2	1	..	..	..	..	2	2	2	2	1	....	....	..	2	....	....	4	....	....	2	1	3	....	....	....	..	12	....	
	Females	1	1	..	..	2	..	..	....	1	3	2	....	....	..	..	....	1	2	3	....	....	....	....	2	1	1	..	10	22	
Londonderry	Males	..	2	..	..	1	..	2	1	3	3	4	1	....	..	....	1	1	2	2	....	3	1	2	1	....	4	..	17	....	
	Females	..	..	1	..	1	..	..	4	2	1	5	....	..	1	2	3	3	1	1	....	1	1	....	2	1	....	..	15	32	
Newcastle	Males	..	..	..	..	1	..	..	....	1	....	....	....	....	..	....	1	....	....	1	....	....	....	....	....	....	....	..	2	....	
	Females	..	..	..	..	1	2	..	....	....	1	1	1	....	..	....	....	....	....	1	1	....	1	3	....	....	....	..	6	8	
Newington	Males	..	..	..	..	1	..	..	1	....	....	2	....	....	..	2	....	1	....	....	1	....	....	....	....	....	....	..	4	....	
	Females	2	..	..	..	..	..	..	..	....	....	....	....	....	..	....	....	....	....	....	....	....	1	1	....	....	....	..	2	6	
Newmarket	Males	6	3	..	4	3	2	3	1	2	2	2	....	....	..	1	2	1	3	4	2	4	5	1	3	2	....	..	28	....	
	Females	4	2	2	1	2	3	3	3	4	3	1	....	....	1	2	4	1	2	1	2	1	3	1	1	4	7	..	29	57	
Newton	Males	2	..	..	..	..	..	..	1	1	2	2	....	....	..	1	....	....	1	2	1	2	....	....	....	....	1	..	8	....	
	Females	2	1	..	..	..	..	2	....	1	3	....	....	....	..	....	1	1	1	....	....	....	2	....	2	1	1	..	9	17	

TABLE No. XVII.—*Continued.*

TOWNS IN ROCKINGHAM COUNTY.—*Continued.*		Under 1.	1 to 5.	5 to 10.	10 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 to 100.	Over 100.	Unknown.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Unknown.	Total.	Grand total.
North Hampton	Males	..	..	..	..	..	..	..	....	4	....	1	....	..	..	1	....	2	....	....	1	....	....	....	1	....	....	..	5	....
	Females	..	..	..	..	1	..	..	....	1	1	1	....	..	..	....	....	....	1	....	1	....	1	....	....	....	1	..	4	9
Northwood	Males	1	..	..	..	1	2	1	1	....	3	3	....	..	..	1	1	....	1	2	2	....	....	2	2	....	1	..	12	....
	Females	1	..	..	1	..	1	..	....	4	5	3	....	..	..	2	1	....	4	1	....	3	1	....	....	2	1	..	15	27
Nottingham	Males	..	..	..	1	1	1	1	1	....	2	1	....	..	..	1	....	1	3	2	....	....	....	....	....	....	1	..	8	....
	Females	1	..	..	..	..	1	1	1	3	....	2	....	..	..	1	....	....	2	....	1	1	1	1	1	1	....	..	9	17
Plaistow	Males	1	..	..	..	..	1	..	1	3	2	1	....	..	1	....	2	....	....	1	1	2	....	1	1	2	....	..	10	....
	Females	5	..	..	1	1	..	..	....	5	....	....	....	..	..	....	3	1	1	1	....	2	....	2	2	....	....	..	12	22
Portsmouth	Males	23	7	4	4	7	22	11	15	9	11	9	1	..	1	9	10	3	4	14	12	14	18	9	5	8	18	..	124	....
	Females	7	9	6	3	4	4	5	6	14	19	19	4	..	2	9	4	10	6	7	9	13	5	6	7	4	22	..	102	226
Raymond	Males	3	1	..	..	..	..	..	2	3	1	2	1	..	..	....	....	1	....	2	3	1	1	....	1	2	2	..	13	....
	Females	..	..	..	..	2	..	1	1	1	3	4	....	..	..	....	....	...	1	2	4	2	1	....	....	2	....	..	12	25
Rye	Males	..	..	..	..	..	..	..	....	2	1	2	....	..	..	....	....	....	....	....	....	....	....	2	1	2	....	..	5	....
	Females	..	..	..	2	1	..	2	1	3	....	1	1	..	..	1	1	...	1	....	1	2	2	1	....	1	1	..	11	16
Salem	Males	1	..	..	..	2	2	..	....	4	5	3	....	..	..	1	....	3	....	1	2	2	2	....	1	1	4	..	17	....
	Females	2	1	1	..	1	1	1	2	1	6	1	....	..	1	4	1	1	3	....	....	3	2	....	1	1	2	..	18	35
Sandown	Males	1	..	..	..	..	1	..	....	1	1	1	....	..	..	1	1	....	1	....	....	....	1	....	1	....	....	..	5	....
	Females	..	2	..	..	2	..	..	....	....	....	2	....	..	..	1	....	....	....	2	....	1	1	....	1	....	....	..	6	11
Seabrook	Males	4	2	..	..	..	2	1	1	1	4	....	....	..	..	2	1	2	....	3	....	1	2	....	1	1	2	..	15	....
	Females	5	2	..	..	..	1	2	3	....	2	2	1	..	..	1	2	....	2	....	2	1	1	4	2	1	1	1	18	33

South Hampton	Males									1	3	1				1		1		1			1				1		5		
	Females											1													1				1	6	
South Newmarket	Males			1						1	1	3				1		1	1			1	1				1		6		
	Females		1			1				2	3	2					3		1	1		1	1	1	1				9	15	
Stratham	Males									2	1		1				1		2			1							4		
	Females							1		1		1							1	1		1							3	7	
Windham	Males				1		1			1		1				1				1				2					4		
	Females	1				3	1					3	1	1		1	3		1	1	2	1		1					10	14	
Total	Males	73	26	5	17	34	44	28	41	70	88	66	8		5	41	43	34	41	53	33	48	50	42	32	33	54	1	505		
	Females	52	23	12	17	32	28	29	42	68	78	84	17	1	6	41	43	33	41	35	38	46	44	30	41	32	64	1	489		
	Not stated	1																										1	1	995	

TABLE No. XVII.—*Continued.*

TOWNS IN STRAFFORD COUNTY.		Under 1.	1 to 5.	5 to 10.	10 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 to 100.	Over 100.	Unknown.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Unknown.	Total.	Grand total.
Barrington	Males	..	..	..	1	1	..	1	1	4	5	3	....	..	..	3	1	1	2	1	1	1	1	....	2	2	1	..	16	....
	Females	1	..	..	..	1	..	..	....	1	2	1	....	..	1	1	....	....	....	1	1	....	1	1	....	....	2	..	7	23
Dover	Males	21	7	1	13	18	12	8	16	19	18	5	....	1	2	8	17	12	17	14	5	6	14	9	12	10	17	..	141	....
	Females	19	8	3	5	15	21	30	19	20	26	9	3	..	2	12	41	16	7	8	10	14	13	11	11	13	22	2	180	321
Durham	Males	..	..	..	..	..	..	..	....	1	....	....	1	..	..	....	....	....	1	1	....	....	....	....	....	....	....	....	..	2	....
	Females	..	..	..	1	..	1	1	....	1	1	3	....	..	..	1	....	1	1	....	....	1	1	....	1	1	1	..	8	10
Farmington	Males	1	..	..	..	..	..	2	2	....	3	3	2	1	4	3	2	2	3	1	1	1	1	2	....	....	1	1	18	....
	Females	..	2	1	1	2	2	1	4	1	5	1	....	..	..	1	2	3	1	2	1	2	2	2	1	2	1	..	20	38
Lee	Males	1	..	..	..	..	..	1	....	2	2	....	....	..	1	....	....	1	....	1	....	2	1	1	....	....	1	..	7	....
	Females	..	..	..	1	..	..	..	....	1	1	1	1	..	..	....	....	....	1	1	1	....	....	1	....	1	....	..	5	12
Madbury	Males	..	..	1	..	1	..	..	....	....	....	....	....	..	..	....	....	....	....	....	....	....	....	....	....	2	....	..	2	....
	Females	..	..	..	..	..	..	..	....	2	....	....	....	..	..	....	....	1	....	....	....	....	....	....	....	....	1	..	2	4
Middleton	Males	..	..	..	..	..	1	..	....	....	....	1	....	..	..	....	....	....	....	....	1	....	1	....	....	....	....	..	2	....
	Females	..	..	..	..	..	..	..	....	....	....	1	....	..	..	....	....	....	1	....	....	....	....	....	....	....	....	..	1	3
Milton	Males	2	2	..	..	3	1	..	3	1	....	1	....	..	..	....	....	1	1	3	1	....	2	4	1	....	....	..	13	....
	Females	..	..	..	1	..	1	..	....	....	3	4	....	..	..	....	....	....	....	1	....	1	....	2	2	1	2	..	9	22
New Durham	Males	..	..	..	..	..	..	..	....	....	2	....	....	..	1	....	....	1	....	1	....	1	....	....	....	....	....	..	3	....
	Females	2	..	..	..	..	..	..	1	1	1	....	....	..	..	....	....	....	1	1	....	1	....	1	....	1	....	..	5	8
Rochester	Males	16	2	3	..	5	5	7	2	8	9	2	....	..	..	7	2	5	3	2	9	5	7	4	6	3	6	..	59	....
	Females	10	5	..	2	5	4	4	2	5	8	6	3	..	..	7	2	6	9	9	3	4	3	3	5	1	2	..	54	113

Rollinsford	Males	11	1	3	1	1	..	1	....	1	2	1	....	..	..	....	4	4	1	1	1	3	1	....	1	2	4	.	22	....	
	Females	2	1	1	2	..	..	1	1	....	2	1	1	..	..	....	....	2	....	1	2	3	....	1	2	....	1	..	12	34	
Somersworth	Males	11	5	2	1	4	3	3	4	4	9	1	....	..	..	3	5	9	1	5	2	3	7	3	7	2	....	..	47	....	
	Females	20	6	4	7	7	3	5	4	8	5	3	....	..	1	2	7	9	6	4	6	5	7	4	9	8	6	..	73	120	
Strafford	Males	..	1	1	..	1	1	..	1	....	1	1	1	..	..	....	....	1	2	....	....	....	1	1	1	....	2	..	8	....	
	Females	2	1	..	..	..	..	..	1	1	2	....	....	..	..	2	1	....	....	1	....	1	....	1	....	....	1	..	7	....	
	Not stated	1	..	..	..	..	..	..	....	....	....	....	....	..	..	....	....	....	....	....	....	1	....	....	....	....	....	..	1	16	
Total	Males	63	18	11	16	34	23	23	29	40	51	18	4	2	8	24	31	37	31	30	21	22	36	24	30	21	32	1	340	....	
	Females	56	23	9	19	31	32	42	32	41	56	30	8	..	4	26	53	38	27	29	24	32	27	27	31	28	39	2	383	....	
	Not stated	1	..	..	..	..	..	..	....	....	....	....	....	..	..	....	....	....	....	....	....	1	....	....	....	....	....	..	1	724	

TABLE No. XVII.—*Continued.*

TOWNS IN BELKNAP COUNTY.		Under 1.	1 to 5.	5 to 10.	10 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 to 100.	Over 100.	Unknown.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Unknown.	Total.	Grand total.
Alton	Males	..	1	..	1	1	..	2	2	1	3	2	....	..	..	1	2	....	3	1	....	1	....	1	2	1	1	..	13	....
	Females	..	1	..	..	..	2	2	3	1	2	2	....	..	..	....	....	1	1	2	2	4	....	1	....	1	1	..	13	26
Barnstead	Males	..	1	..	..	..	..	..	1	3	3	....	....	..	..	....	....	4	1	1	1	....	....	....	1	....	....	..	8	....
	Females	..	..	..	1	2	1	..	....	2	1	2	....	..	..	2	....	....	2	2	1	1	....	....	....	....	1	..	9	17
Belmont	Males	..	3	2	..	..	..	1	2	....	2	1	....	..	..	1	1	....	1	2	....	1	2	1	1	1	....	..	11	....
	Females	..	1	..	1	1	..	1	1	....	3	1	....	..	..	2	1	....	....	1	....	1	1	1	1	....	1	..	9	20
Centre Harbor	Males	1	..	..	..	..	..	..	....	1	2	....	....	..	..	....	....	....	....	....	1	....	2	....	....	....	1	..	4	....
	Females	..	..	..	..	..	..	..	....	1	....	1	....	..	..	....	....	....	....	1	....	....	....	1	....	....	....	..	2	6
Gilford	Males	..	..	..	..	..	1	..	....	....	1	2	....	..	..	1	....	....	....	1	....	....	2	....	....	....	....	..	4	
	Females	..	..	..	..	..	..	..	1	....	1	....	....	..	..	....	....	1	....	....	1	....	....	....	....	....	....	..	2	6
Gilmanton	Males	2	..	..	..	..	1	2	2	1	3	4	....	..	..	....	3	3	1	1	....	1	....	1	3	1	1	..	15	....
	Females	2	..	..	..	2	2	..	2	1	2	....	....	..	..	2	....	....	2	2	1	1	2	....	....	1	....	..	11	26
Laconia	Males	23	13	4	3	8	3	7	5	5	7	1	....	..	1	5	4	4	5	11	5	4	11	14	8	4	5	..	80	....
	Females	17	16	2	2	8	5	1	3	9	14	5	1	..	1	3	7	6	6	10	11	5	10	5	11	5	5	..	84	164
Meredith	Males	1	..	..	..	..	1	..	2	1	....	4	....	..	..	1	1	....	1	....	1	1	2	1	1	....	....	..	9	....
	Females	..	..	..	1	..	1	..	1	2	5	4	....	..	1	2	2	1	....	1	3	2	....	1	....	1	2	..	15	24
New Hampton	Males	2	..	..	..	..	..	2	....	....	1	2	....	..	..	1	....	....	2	....	....	2	....	1	1	....	....	..	7	....
	Females	..	1	..	..	1	1	..	2	2	3	4	....	..	..	3	1	2	....	1	1	....	1	2	2	....	1	..	14	21

Sanbornton	Males	3	..	..	..	..	..	..	....	1	1	4	....	..	..	1	2	....	2	....	....	....	....	2	....	....	2	..	9	....	
	Females	..	..	..	1	..	..	1	....	3	3	2	....	..	..	1	2	....	1	....	1	1	....	....	1	1	2	..	10	19	
Tilton	Males	3	1	..	..	..	1	..	2	4	3	....	1	..	..	1	1	2	....	1	....	2	1	2	1	1	3	2	..	16	....	
	Females	2	..	..	..	..	..	1	1	4	1	1	....	..	..	1	....	....	2	1	1	....	1	3	1	....	....	....	2	11	27	
Totals	Males	35	19	6	4	9	7	14	16	17	26	20	1	..	2	12	15	11	17	17	10	11	21	22	18	10	12	..	176	....	
	Females	21	19	2	6	14	12	6	14	25	35	22	1	..	3	15	13	13	13	21	21	16	17	12	14	10	13	2	180	356	

TABLE No. XVII.—*Continued.*

TOWNS IN CARROLL COUNTY.		Under 1.	1 to 5.	5 to 10.	10 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 to 100.	Over 100.	Unknown.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Unknown.	Total.	Grand total.
Albany	Males	1	..	..	..	..	..	..	....	....	....	....	....	..	..	....	....	....	....	....	....	....	....	....	1	....	....	..	1	....
	Females	..	..	..	1	..	..	..	1	....	1	....	....	..	1	....	....	....	....	....	1	....	....	....	1	1	....	1	4	5
Bartlett	Males	3	..	1	1	3	..	1	1	....	2	....	....	..	..	....	1	3	1	1	1	1	....	....	1	....	3	..	12	....
	Females	2	4	2	..	1	1	1	....	....	....	1	....	..	..	....	....	2	2	....	....	2	....	2	1	....	3	..	12	24
Brookfield	Males	1	..	..	..	..	..	..	....	....	2	1	....	..	..	....	....	....	2	....	....	....	1	....	....	1	....	..	4	....
	Females	..	..	..	1	..	..	1	....	....	....	....	....	..	..	....	....	....	....	....	....	1	....	....	....	1	....	..	2	6
Chatham	Males	..	..	..	..	..	..	..	....	....	....	1	....	..	..	1	....	....	....	....	....	....	....	....	....	....	....	..	1	....
	Females	..	..	..	..	..	1	..	..	....	....	....	....	..	..	....	....	....	....	1	....	....	....	....	....	....	....	..	1	2
Conway	Males	4	..	..	1	2	1	2	1	4	1	....	....	..	..	1	1	1	1	....	....	1	1	2	3	4	1	..	16	....
	Females	1	2	..	2	3	1	1	4	2	5	3	1	..	..	4	1	....	2	3	3	2	4	2	1	1	2	..	25	....
	Not stated	1	..	..	..	..	..	..	....	....	....	....	....	..	..	....	....	....	....	....	....	1	....	....	....	....	....	..	1	42
Eaton	Males	..	..	..	..	1	..	..	1	....	1	....	....	..	..	....	....	....	....	1	1	....	1	....	....	....	....	..	3	....
	Females	..	..	..	..	..	2	..	....	....	1	2	....	..	..	....	....	....	....	1	....	....	....	1	1	....	2	..	5	8
Effingham	Males	..	..	1	..	2	..	..	....	....	....	1	....	..	..	....	....	....	....	....	....	....	1	....	....	2	1	..	4	....
	Females	..	1	..	1	..	..	..	....	1	2	3	....	..	1	....	1	....	2	1	....	1	....	1	2	....	1	..	9	13
Freedom	Males	..	..	..	..	1	..	..	....	1	1	....	....	..	..	1	....	....	....	....	....	1	1	....	....	....	....	..	3	....
	Females	1	..	..	..	1	..	..	....	2	1	1	....	..	..	2	1	1	1	....	....	....	....	1	....	....	....	..	6	9
Hart's Location	Males	..	..	..	..	..	1	..	....	....	....	....	....	..	..	....	....	....	1	....	....	....	....	....	....	....	....	..	1	....
	Females	..	..	..	..	..	..	..	....	....	....	....	....	..	..	....	....	....	....	....	....	....	....	....	....	....	....	..	....	1
Jackson	Males	..	..	..	..	..	..	..	1	1	....	1	....	..	..	....	1	....	1	....	....	....	....	1	....	....	....	..	3	....
	Females	..	..	..	..	..	..	..	....	....	....	....	1	..	..	....	....	....	1	....	....	....	....	....	....	....	....	..	1	4

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TABLE No. XVII.—*Continued.*

TOWNS IN MERRIMACK COUNTY.		Under 1.	1 to 5.	5 to 10.	10 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 to 100.	Over 100.	Unknown.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Unknown.	Total.	Grand total.
Allenstown	Males	3	1	1	..	1	3	..	....	1	1	2	....	..	1	4	3	1	2	....	1	1	...	1	....	....	1	..	14	....
	Females	7	4	..	2	1	2	1	1	1	1	1	....	..	..	2	1	2	5	2	....	4	4	....	....	....	1	..	21	35
Andover	Males	1	..	1	..	1	..	1	....	2	5	2	....	..	..	3	2	1	....	3	1	....	2	....	1	....	....	..	13	....
	Females	1	..	..	..	1	1	2	1	1	1	1	....	..	..	1	....	....	....	....	....	1	3	....	....	3	1	..	9	22
Boscawen	Males	2	1	..	..	1	1	2	....	6	7	2	....	..	..	2	....	5	....	....	1	4	3	3	....	2	2	..	22	....
	Females	..	..	..	1	1	1	1	....	4	3	5	....	..	..	....	....	....	3	1	2	1	2	2	1	....	4	..	16	38
Bow	Males	1	..	1	2	..	..	2	1	....	1	1	....	..	..	....	1	..	4	1	1	....	....	....	1	1	....	..	9	....
	Females	..	2	..	..	2	..	1	1	2	1	....	1	..	..	1	....	3	1	....	1	1	....	....	....	2	1	..	10	19
Bradford	Males	..	..	..	1	..	..	..	3	1	3	2	1	..	..	1	1	3	....	1	....	2	1	....	....	1	1	..	11	....
	Females	1	1	..	1	1	..	3	....	....	3	4	....	..	..	1	3	....	....	1	....	2	3	1	1	1	1	..	14	25
Canterbury	Males	..	..	1	1	1	1	1	....	....	1	1	1	..	1	....	....	....	3	1	....	2	2	....	....	....	1	..	9	....
	Females	1	1	1	1	1	1	2	1	....	1	1	....	..	..	1	1	....	2	1	3	....	....	1	....	1	1	..	11	20
Chichester	Males	..	..	..	1	..	..	1	....	...	1	....	...	..	..	....	....	....	....	....	1	....	....	1	....	1	....	..	3	....
	Females	..	..	..	..	1	..	..	1	1	....	....	....	..	..	....	....	....	....	....	....	1	....	....	....	....	2	..	3	6
Concord	Males	37	19	1	8	15	16	14	22	33	23	11	1	..	2	18	11	15	21	24	15	17	19	17	6	1	19	..	202	...
	Females	44	11	3	8	21	10	19	22	22	27	20	5	..	..	22	11	18	21	23	9	14	22	25	13	2	18	..	212	414
Danbury	Males	1	..	..	..	..	..	..	....	....	3	1	....	..	..	1	....	....	1	....	1	1	....	....	....	20	....	..	5	....
	Females	..	..	..	..	..	..	..	....	....	4	2	....	..	..	....	....	1	2	1	....	....	....	....	....	16	....	..	6	11
Dunbarton	Males	1	..	..	..	..	..	..	1	2	1	2	....	..	..	2	1	....	....	....	....	1	....	....	....	2	1	..	7	....
	Females	..	..	..	..	..	..	..	....	1	1	1	....	..	..	1	...	....	....	1	....	....	....	....	1	....	....	..	3	10
Epsom	Males	..	1	..	..	1	1	..	1	1	1	1	....	..	..	....	....	....	....	1	2	....	1	....	2	....	1	..	7	....
	Females	1	..	..	..	1	..	..	2	...	1	2	....	..	..	....	2	1	1	....	1	....	...	....	....	1	1	..	7	14

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TABLE No. XVII.—*Continued.*

TOWNS IN MERRIMACK COUNTY.—*Continued.*		Under 1.	1 to 5.	5 to 10.	10 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 to 100.	Over 100.	Unknown.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Unknown.	Total.	Grand total.
Webster	Males	..	..	..	..	..	..	..	1	....	1	1	....	..	..	1	....	....	1	....	1	....	....	....	....	....	....	..	3	....
	Females	1	..	..	..	..	..	..	....	1	....	....	....	..	..	....	....	....	1	....	....	....	....	1	....	....	....	..	2	5
Wilmot	Males	..	1	..	..	..	..	1	1	2	1	2	....	..	..	1	....	....	1	....	....	5	....	....	....	....	1	..	8	....
	Females	..	..	..	..	..	..	..	1	....	4	4	....	..	..	....	3	....	....	....	2	1	....	1	....	....	2	..	9	17
Total	Males	74	31	8	21	28	35	36	45	71	89	48	3	..	8	47	28	36	50	49	34	53	44	41	25	41	49	..	497	....
	Females	77	31	6	22	44	30	40	49	55	80	72	13	..	1	48	31	40	58	48	31	40	50	47	32	41	54	..	520	....
	Not stated	1	..	..	..	..	..	..	....	....	....	....	....	..	1	1	1	....	....	....	....	....	....	....	....	....	....	..	2	1019

TABLE No. XVII.—*Continued.*

TOWNS IN HILLSBOROUGH COUNTY.		Under 1.	1 to 5.	5 to 10.	10 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 to 100.	Over 100.	Unknown.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Unknown.	Total.	Grand total.
Amherst	Males	2	..	1	1	..	..	..	....	4	1	1	..	..	..	1	1	....	1	3	1	....	....	1	1	....	1	..	10	....
	Females	4	1	1	2	..	..	..	3	3	6	5	..	..	..	2	....	3	3	3	1	....	2	2	2	4	3	..	25	35
Antrim	Males	3	..	..	..	..	..	1	1	5	6	1	..	..	..	3	....	2	....	2	2	....	1	1	2	2	2	..	17	....
	Females	2	..	..	..	..	2	..	2	1	2	3	..	..	..	2	1	2	2	..	..	....	1	2	1	....	1	..	12	29
Bedford	Males	3	1	..	..	..	2	..	1	3	2	1	..	..	..	2	2	....	1	1	1	1	2	1	....	2	....	..	13	....
	Females	1	1	..	..	1	..	1	4	....	4	4	1	..	..	1	....	3	2	2	1	....	1	3	1	2	1	..	17	30
Bennington	Males	2	..	..	..	..	..	..	....	..	..	..	..	..	..	..	....	....	....	....	1	....	1	....	....	....	....	..	2	...
	Females	2	..	1	..	..	1	1	....	....	....	1	..	..	..	..	....	....	....	....	....	3	1	1	....	1	....	..	6	8
Brookline	Males	1	..	..	..	..	..	..	1	....	1	....	..	..	1	....	....	1	1	....	....	1	....	1	....	....	....	..	4	....
	Females	....	1	..	1	..	..	..	....	1	1	....	..	..	..	1	....	....	....	....	....	1	....	....	....	....	2	..	4	8
Deering	Males	1	..	..	1	..	..	..	....	1	1	1	..	..	..	....	....	1	1	....	....	2	1	....	....	....	....	..	5	....
	Females	....	..	1	..	..	..	..	1	1	2	1	1	..	..	....	....	1	2	1	1	....	....	1	....	....	1	..	7	12
Francestown	Males	1	2	..	..	..	..	..	....	..	..	..	..	..	..	1	....	....	....	1	....	....	....	....	....	1	....	..	3	....
	Females	....	1	..	..	2	1	..	3	....	....	....	2	..	..	1	1	....	....	....	....	3	1	2	....	....	1	..	9	12
Goffstown	Males	1	1	..	..	..	..	..	1	4	....	1	..	..	..	....	....	....	....	1	....	1	....	1	1	1	3	..	8	....
	Females	....	..	..	1	..	..	..	....	1	5	2	..	..	..	3	1	....	3	....	1	....	....	....	....	....	1	..	9	17
Greenfield	Males	....	..	..	..	1	1	..	....	....	1	1	..	..	..	....	1	....	....	....	....	1	....	1	....	1	....	..	4	....
	Females	1	..	..	1	..	1	..	....	....	3	1	1	..	..	....	....	....	1	2	1	....	1	1	1	....	1	..	8	12
Greenville	Males	7	2	..	..	1	..	1	2	1	2	....	..	..	1	....	1	3	....	3	1	1	1	....	2	2	3	..	17	....
	Females	5	3	..	..	..	..	2	....	....	....	1	..	..	..	2	....	1	....	1	2	..	2	....	1	2	....	..	11	28
Hancock	Males	2	..	..	..	..	1	..	....	2	4	2	..	..	..	....	4	....	1	1	2	....	1	1	....	....	1	..	11	....
	Females	....	..	..	1	..	..	.	2	....	1	2	2	..	..	2	....	....	....	1	....	....	....	2	1	2	....	..	8	19

TABLE No. XVII.—*Continued.*

TOWNS IN HILLSBOROUGH COUNTY.—*Continued.*		Under 1.	1 to 5.	5 to 10.	10 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 to 100.	Over 100.	Unknown.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Unknown.	Total.	Grand total.
Hillsborough	Males	2	..	..	2	3	2	4	2	2	2	4	..	..	1	3	3	3	1	3	1	1	3	2	2	....	2	..	24	....
	Females	3	1	2	..	..	1	2	2	3	5	1	..	..	1	1	2	5	1	1	1	1	1	3	3	....	2	..	21	45
Hollis	Males	..	..	..	..	..	..	1	2	..	5	1	..	..	..	..	1	1	2	2	1	..	..	1	1	..	..	..	9	....
	Females	..	..	..	1	..	..	..	1	..	1	2	..	..	1	..	..	..	1	1	..	1	..	..	..	..	3	..	6	15
Hudson	Males	3	..	2	..	..	..	2	3	3	2	..	..	..	..	3	3	1	1	..	1	..	3	..	..	3	..	..	15	....
	Females	1	1	..	..	1	1	1	1	1	5	1	..	..	..	..	..	2	1	2	1	3	..	..	1	1	1	..	12	27
Litchfield	Males	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	....
	Females	..	..	..	..	..	..	1	..	1	1	..	..	..	..	..	..	..	1	1	..	..	1	..	..	..	..	..	3	4
Lyndeborough	Males	..	..	..	..	..	..	..	1	1	3	1	..	..	..	1	..	1	..	..	..	1	..	1	1	..	1	..	6	....
	Females	..	..	..	1	1	..	..	1	1	2	1	2	..	..	1	1	..	..	..	1	..	1	1	2	..	2	..	9	15
Manchester	Males	179	45	9	19	28	34	34	35	39	29	14	2	..	13	33	38	34	39	30	25	60	55	52	37	30	47	1	430	....
	Females	151	59	13	21	55	38	35	39	32	24	25	5	1	16	41	29	35	39	36	35	58	61	57	42	41	40	..	514	....
	Not stated	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	..	..	..	..	..	..	..	1	..	..	..	..	2	996
Mason	Males	..	..	..	..	1	..	..	..	2	..	2	..	..	..	..	..	1	1	2	..	..	..	..	..	..	1	..	5	....
	Females	1	..	..	1	..	..	1	1	1	1	..	..	..	..	1	..	..	..	..	1	1	..	2	1	..	..	..	6	11
Merrimack	Males	1	..	..	1	1	1	..	1	4	1	1	..	..	1	1	..	1	..	1	..	2	2	2	1	1	1	..	12	....
	Females	..	..	1	..	..	..	..	..	..	3	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	2	..	4	16
Milford	Males	1	1	..	1	1	1	3	2	2	4	2	..	..	..	2	1	1	2	2	1	1	4	2	1	....	1	..	18	....
	Females	5	3	1	..	3	1	2	7	3	4	5	..	..	..	2	4	2	3	6	1	1	3	1	....	1	10	..	34	52
Mont Vernon	Males	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	2	....
	Females	..	..	..	..	..	..	2	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	1	1	..	..	..	3	5

Nashua	Males	61	16	1	9	19	11	5	10	18	16	10	..	..	5	23	14	14	10	5	5	33	20	16	24	8	9	..	181	....
	Females	46	16	3	10	11	14	24	8	12	18	15	4	..	2	17	11	14	8	19	14	23	19	6	11	9	30	2	183	364
New Boston	Males	1	1	..	..	..	1	..	1	6	2	1	..	..	1	....	2	....	1	4	3	2	....	....	1	....	1	..	14	....
	Females	....	..	..	..	..	..	3	1	1	1	1	2	..	..	....	....	....	....	2	1	2	....	1	1	....	2	..	9	23
New Ipswich	Males	1	..	..	..	..	1	..	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	1	....	....	....	2	....
	Females	1	2	1	..	..	1	..	....	....	1	1	..	..	..	1	....	....	1	....	1	....	....	1	....	2	1	..	7	9
Pelham	Males	5	..	..	..	..	1	1	1	1	3	2	....	..	1	1	1	2	1	2	....	1	2	1	1	1	2	..	15	....
	Females	....	..	..	..	..	..	..	....	1	3	4	..	..	..	....	....	1	....	2	1	1	....	1	....	....	2	..	8	23
Peterborough	Males	1	2	..	1	1	..	..	1	6	4	3	1	..	..	2	1	2	4	2	....	....	2	2	2	2	1	..	20	....
	Females	2	1	..	1	3	..	1	....	3	3	3	1	..	..	2	2	3	1	....	1	1	3	1	....	1	3	..	18	38
Sharon	Males	....	..	..	..	..	..	..	....	....	1	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	1	....
	Females	....	..	..	..	..	..	..	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	1	2
Temple	Males	....	..	..	..	..	..	..	1	....	1	....	....	....	....	....	....	....	....	....	....	1	....	....	....	1	....	....	2	....
	Females	....	..	..	..	..	1	..	....	1	....	....	1	..	..	1	....	....	....	1	....	....	....	....	....	....	1	..	3	5
Weare	Males	....	..	..	..	1	2	2	2	1	3	2	....	..	2	2	1	1	2	1	1	....	....	3	1	1	2	..	15	....
	Females	....	1	..	..	2	1	2	2	4	3	4	..	..	..	1	3	1	2	2	....	1	1	2	....	3	3	..	19	34
Wilton	Males	4	2	..	1	2	2	3	3	8	12	7	..	..	1	10	8	....	1	2	4	2	4	7	1	1	5	..	45	....
	Females	6	2	..	1	3	3	4	1	5	2	2	1	..	1	3	2	....	2	3	4	1	5	2	2	....	7	..	31	76
Windsor	Males	....	..	..	..	..	..	..	....	....	1	....	..	..	..	1	....	....	....	....	....	....	....	....	....	....	....	....	1	....
	Females	1	..	..	..	..	..	..	....	....	....	....	..	..	..	....	....	....	....	....	....	....	1	....	....	....	....	....	1	2
Total	Males	282	73	13	36	59	60	58	72	113	107	59	3	..	27	88	83	69	71	68	51	112	104	96	81	55	83	1	962	....
	Females	232	93	24	59	83	67	81	80	76	101	87	23	1	21	84	57	75	75	86	69	101	105	93	71	70	120	2	1008	....
	Not stated	....	..	..	..	..	..	..	....	....	....	....	..	..	2	1	....	....	....	....	....	....	....	1	....	....	....	..	2	1972

TABLE No. XVII.—*Continued.*

TOWNS IN CHESHIRE COUNTY.		Under 1.	1 to 5.	5 to 10.	10 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 to 100.	Over 100.	Unknown.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Unknown.	Total.	Grand total.
Alstead	Males	1	..	..	..	..	..	..	..	1	3	..	..	..	..	..	1	1	..	1	..	1	..	..	1	..	..	..	5	..
	Females	..	..	..	..	..	1	..	..	2	5	1	1	..	..	1	..	1	3	3	1	..	..	..	..	..	1	..	10	15
Chesterfield	Males	..	..	..	..	..	..	..	..	3	3	3	..	..	..	1	..	1	1	1	2	1	..	1	..	..	1	..	9	..
	Females	..	..	..	..	..	2	1	..	1	2	2	1	..	..	1	1	..	2	..	1	1	..	1	..	..	2	..	9	18
Dublin	Males	..	..	..	..	..	..	..	..	2	1	..	..	..	..	1	..	..	..	..	1	..	..	..	..	1	..	..	3	..
	Females	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	2	5
Fitzwilliam	Males	1	..	1	2	2	1	1	3	2	3	2	..	1	..	4	6	1	2	1	1	..	..	..	2	1	1	..	19	..
	Females	1	..	..	1	..	..	3	..	1	2	1	1	..	1	..	1	..	..	..	1	5	1	1	..	1	1	..	11	30
Gilsum	Males	..	..	..	..	..	..	..	1	..	3	1	..	..	..	1	..	..	..	..	..	..	..	1	1	1	1	..	5	..
	Females	..	..	..	..	..	..	..	..	1	2	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	1	..	3	8
Harrisville	Males	2	..	..	1	..	1	1	..	..	1	1	..	..	..	1	..	..	..	2	..	1	..	2	1	..	..	..	7	..
	Females	..	..	..	..	1	..	..	1	1	..	1	..	..	..	..	..	1	1	..	..	1	..	..	..	1	..	..	4	11
Hinsdale	Males	2	3	..	..	1	1	1	2	4	4	2	..	..	1	5	1	1	1	2	..	3	1	2	2	2	1	..	21	..
	Females	5	4	1	..	..	2	1	2	1	2	3	..	..	..	..	1	..	3	3	2	1	2	3	2	2	1	1	21	42
Jaffrey	Males	1	3	1	1	..	..	1	1	1	..	1	..	..	..	..	1	..	4	..	1	2	1	1	..	..	..	..	10	..
	Females	4	1	..	1	1	..	1	..	3	5	2	2	..	..	2	2	1	1	3	..	1	1	2	..	..	..	..	7	20	30
Keene	Males	13	7	2	4	6	9	5	9	8	11	11	1	..	..	9	2	4	11	7	9	8	9	6	5	6	10	..	86	..
	Females	9	2	3	4	5	7	7	2	9	11	8	2	..	..	7	8	6	1	8	5	6	5	3	4	7	9	..	69	155
Marlborough	Males	5	..	..	1	1	1	..	1	1	4	1	..	..	..	..	2	1	2	2	1	2	2	2	..	1	..	..	15	..
	Females	1	5	1	..	..	4	2	1	3	3	1	..	..	..	2	2	4	2	2	1	2	1	3	..	..	2	..	21	36

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TABLE No. XVII,—*Continued.*

TOWNS IN SULLIVAN COUNTY.		Under 1.	1 to 5.	5 to 10.	10 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 to 100.	Over 100.	Unknown.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Unknown.	Total.	Grand total.
Acworth	Males	..	..	..	1	2	..	1	2	3	..	..	..	..	..	3	..	..	3	1	..	..	..	..	2	..	..	..	9	....
	Females	1	2	..	..	..	..	1	..	..	4	1	1	..	..	..	..	2	1	3	..	1	..	1	2	..	..	..	10	19
Charlestown	Males	2	2	..	..	3	2	..	..	5	2	1	..	..	..	1	..	1	2	..	1	7	2	..	1	1	1	..	17	....
	Females	1	..	..	..	1	3	..	2	2	5	1	1	..	..	1	..	2	..	3	1	..	3	1	4	..	1	..	16	33
Claremont	Males	8	6	..	1	2	2	1	1	5	11	3	..	..	..	2	3	8	2	3	3	3	4	1	4	2	5	..	40	....
	Females	7	3	..	2	5	5	5	3	7	9	4	..	..	..	4	1	6	5	4	3	..	6	5	7	1	8	..	50	90
Cornish	Males	..	1	..	..	..	..	..	1	1	3	2	1	..	..	..	..	1	..	1	2	..	2	..	1	2	..	..	9	....
	Females	1	..	..	1	1	1	..	1	1	1	5	..	..	..	2	1	..	2	1	1	..	..	3	1	1	..	..	12	21
Croydon	Males	..	..	..	..	..	..	..	..	..	2	1	..	..	1	1	2	..	..	..	..	..	1	..	..	..	..	..	4	....
	Females	1	..	..	1	..	..	..	1	..	2	2	..	..	..	1	1	..	..	..	1	..	..	1	1	1	1	..	7	11
Goshen	Males	1	..	..	..	..	..	..	..	..	2	3	..	..	..	1	..	1	1	..	1	..	..	..	1	..	1	..	6	....
	Females	..	..	..	..	..	..	..	2	..	..	1	..	..	..	..	1	1	..	..	..	..	..	..	..	..	1	..	3	9
Grantham	Males	..	1	..	..	..	..	..	..	1	..	2	..	..	..	..	1	..	..	1	..	1	..	..	..	..	1	..	4	....
	Females	..	..	..	1	..	1	..	..	..	1	..	..	1	..	1	..	1	..	1	..	..	..	..	..	..	1	..	4	8
Langdon	Males	..	..	..	1	..	..	..	1	1	..	..	..	..	1	..	1	..	1	..	..	..	1	..	..	..	1	..	4	....
	Females	..	..	..	..	1	..	1	..	..	1	1	..	..	..	1	1	..	..	..	1	..	1	..	..	..	..	..	4	8
Lempster	Males	..	2	..	..	..	..	..	2	..	..	..	1	..	..	..	1	..	1	..	1	..	..	1	1	..	..	..	5	....
	Females	..	..	..	..	..	..	..	..	1	3	3	1	..	..	1	..	..	1	1	1	1	1	..	1	1	..	..	8	13
Newport	Males	6	1	1	1	4	2	2	4	5	8	1	..	1	2	2	5	4	2	4	2	2	3	3	2	6	3	..	38	....
	Females	5	..	..	3	4	1	1	1	3	7	..	1	..	..	2	..	..	3	1	4	2	1	5	4	4	..	..	26	64

Plainfield	Males	1		1				2	2	2						1		2		4	1					8	
	Females	2			2	1	2		2	2	1				2	5	2				1	1	1			12	20
Springfield	Males	1	1							2	2	1		2			1		1	2			1			7	
	Females		1		1		1	2	2		1			1		1	1	1	1					1	2	8	15
Sunapee	Males	2			1	1			1	1	1				1	2		1			1	1			1	7	
	Females	1					1	1	1	2	4	1		1	1	1	1	2			1	2	2	2		12	19
Unity	Males	2						1		2	1				1	1		1		2					1	6	
	Females		1		1						1	1						1			1	1	1			4	10
Washington	Males					1		1		1					1					1					1	3	
	Females		1					1					1		1						1	1				3	6
Total	Males	23	14	2	5	13	6	6	13	27	34	16	3	1	4	14	15	18	14	13	14	19	15	6	13	11	15		167	
	Females	19	8		10	14	14	10	14	19	38	25	6	1	1	15	8	19	17	17	13	5	16	20	24	11	14		179	346

TABLE No. XVII.—*Continued.*

TOWNS IN GRAFTON COUNTY.		Under 1.	1 to 5.	5 to 10.	10 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 to 100.	Over 100.	Unknown.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Unknown.	Total.	Grand total.
Alexandria	Males	..	..	1	..	..	..	..	2	3	..	..	..	..	1	..	3	1	..	..	..	1	1	..	..	1	..	..	7	..
	Females	..	..	..	..	..	..	..	..	1	2	2	2	..	..	..	..	1	..	..	1	..	..	..	1	2	2	..	7	14
Ashland	Males	1	1	..	1	..	1	1	2	1	..	..	..	..	..	..	3	2	..	1	..	1	..	..	1	..	..	..	8	..
	Females	2	1	..	1	..	1	..	1	2	1	2	..	..	..	1	1	..	3	2	..	1	..	..	1	..	2	..	11	19
Bath	Males	1	1	..	..	..	..	..	..	..	1	1	..	..	..	1	..	..	3	..	..	..	..	..	..	..	..	..	4	..
	Females	1	1	..	3	1	2	..	..	1	1	1	..	..	..	1	2	4	1	2	..	..	..	..	1	..	..	..	11	15
Benton	Males	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	2	..	..	..	..	..	..	..	3	..
	Females	..	2	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	1	..	2	..	..	..	1	..	..	..	4	7
Bethlehem	Males	5	..	..	1	1	1	3	3	2	2	..	..	..	..	1	1	3	1	1	4	..	2	1	..	4	..	18	..
	Females	1	..	..	1	..	..	..	..	4	1	..	..	..	..	..	1	1	1	1	..	2	..	..	..	1	..	7	25
Bridgewater	Males	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	2	..
	Females	..	..	1	1	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	1	..	3	5
Bristol	Males	1	..	..	1	1	2	2	2	3	3	1	..	..	1	1	..	4	1	2	..	1	..	2	3	3	..	..	17	..
	Females	1	..	..	..	..	..	2	1	4	..	2	..	..	..	1	2	..	1	2	1	..	..	..	2	1	..	..	10	27
Campton	Males	1	..	..	..	..	..	..	1	..	3	6	..	..	..	1	2	1	3	..	1	..	..	..	1	1	1	..	11	..
	Females	2	..	..	..	..	1	..	1	1	2	2	1	..	..	1	..	1	2	..	..	1	1	1	..	1	2	..	10	21
Canaan	Males	3	..	..	2	1	..	..	2	6	5	6	..	..	..	2	3	2	1	3	2	2	1	3	1	4	1	..	25	..
	Females	4	4	..	1	..	1	3	1	1	1	1	..	..	..	..	1	2	2	..	1	1	3	..	4	2	1	..	17	42
Dorchester	Males	..	..	..	..	..	..	..	..	1	3	..	..	..	..	..	..	..	..	3	..	..	..	1	..	..	..	..	4	..
	Females	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	5

Easton	Males	1									1											1				1			2	
	Females				1	1											1	1											2	4
Ellsworth	Males									1	1									1					1			2	
	Females																												2
Enfield	Males	1						1	4	2									1		2	2	2	1				8	
	Females	1	1		1	1	2		1	4	1	1		2	2	4	1			1				1	2			13	21
Franconia	Males					1					2				1					1				1		1		3	
	Females			1				1		1	1									1		2				1		4	7
Grafton	Males	1		1		1			1	2	2			1	1		1	1	1		1	1	1					8	
	Females					1		2		3	1				1			1		2	1				2		7	15
Groton	Males	1						1			1			1	1	2					1						4	
	Females	1										1				1		1									2	6
Hanover	Males	2	1				1	1	2	3	5	3				2	1	3	3	3	2	1	2			1		18	
	Females	1				1	2	1		3	4	3			1	2	1	2			1	1	3		3	1		15	33
Haverhill	Males	1		1	2	3	3	4	3	6	6	2	1		2	3	4	1	1	2	3	3	2	4	3	5	3		34	
	Females	1		1		3	3	4	2		5	4	2			1	2	1	1	2	1	2	6	1	3	2	2	1	25	59
Hebron	Males						1					2				1				1	1								3	
	Females										1						1												1	4
Holderness	Males					1			1		1	1	1				1	1		1		2							5	
	Females									1	2							1							1		1		3	8
Landaff	Males		1								1	1					1					1					1		3	
	Females		1				1			1	2	1	1			1		1		1	1		1		1	1			7	10
Lebanon	Males	4	4	4	3		1	3	2	7	2	6				2	2	4	8	7	1	1	5	3	1	1	1		36	
	Females	4	4	1	3	2	1	3	3	3	6	8	2			1	3	5	4	4	3	2	4	4	4	3	3		40	76
Lincoln	Males			1	1		1								1		1								1		2		4	
	Females	2										2								1					3				4	8
Lisbon	Males	2	1	2	1		2			3	6	1	2			1	2	1	4	1	2	1	1	2	1	2	2		20	
	Females	1	1	1		2	1	2	2	6		2	1			2		3	3	2	1		3	3			2		19	39
Littleton	Males	8	6		3	1		3		4	5	5				3	1	4	2	4	3	5	3	3		2	4	1	35	
	Females	1	1		2	1	4		1	3	3	7				1	1	3	2	3		2	4	3		2	2		23	58

TABLE No. XVII.—*Continued.*

TOWNS IN GRAFTON COUNTY.—*Continued.*		Under 1.	1 to 5.	5 to 10.	10 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 to 100.	Over 100.	Unknown.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Unknown.	Total.	Grand total.
Livermore	Males	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	....
	Females	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Lyman	Males	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	1	..	..	1	1	..	..	..	..	..	..	3	....
	Females	..	1	..	..	..	..	..	..	..	2	1	..	..	..	1	..	..	1	..	..	2	..	..	..	..	..	..	4	7
Lyme	Males	..	1	..	..	1	..	..	..	3	6	2	..	..	..	2	1	..	1	4	..	..	..	..	..	1	4	..	13	....
	Females	1	..	..	2	1	1	1	..	2	2	2	..	..	1	..	..	1	2	4	1	2	..	1	..	..	2	..	13	26
Monroe	Males	..	1	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	1	2	..	..	..	..	..	3	....
	Females	..	1	..	1	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	1	..	..	..	1	..	..	..	3	6
Orange	Males	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	....
	Females	1	..	..	1	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	1	..	..	3	4
Orford	Males	2	..	..	..	..	..	..	2	..	1	2	..	..	..	1	1	..	1	..	..	..	2	..	..	1	1	..	7	....
	Females	2	..	..	..	..	..	1	..	3	2	1	..	..	..	..	1	1	2	2	..	..	..	..	2	..	1	..	9	16
Piermont	Males	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	2	....
	Females	..	..	..	..	..	..	..	1	..	2	..	1	..	1	..	..	..	..	..	..	..	2	..	1	..	..	..	4	6
Plymouth	Males	2	1	..	..	1	..	..	2	2	..	..	..	..	2	2	1	..	2	..	..	2	1	..	..	1	1	..	10	....
	Females	2	..	..	..	2	..	1	4	2	1	3	..	..	..	1	1	1	3	..	1	2	1	2	..	..	2	1	15	25
Rumney	Males	..	..	..	..	..	1	..	..	3	1	3	..	..	..	2	..	1	..	1	1	..	2	1	..	..	..	..	8	....
	Females	..	..	..	..	..	1	2	1	..	1	1	..	..	..	2	..	..	..	..	2	1	..	..	1	..	..	..	6	14
Thornton	Males	1	..	..	1	..	..	1	..	1	..	..	..	..	1	..	1	..	..	1	..	..	..	..	..	1	2	..	5	....
	Females	..	..	..	1	1	..	1	2	1	3	1	..	..	..	3	..	2	..	2	..	..	..	1	2	..	..	..	10	15

Warren	Males	..	..	..	..	1	..	1	....	....	....	3	....	..	..	....	....	..	2	....	....	....	....	1	....	1	1	..	5	....	
	Females	..	..	..	..	1	..	1	1	2	2	1	..	..	....	....	2	....	....	....	1	1	2	2	....	....	..	8	13		
Waterville	Males	..	..	..	..	1	..	..	....	....	....	....	....	..	..	....	....	....	....	....	....	1	....	....	....	....	....	..	1	....	
	Females	..	..	..	..	..	..	..	....	....	....	....	....	..	..	....	....	....	....	....	....	....	....	....	....	....	....	..	....	1	
Wentworth	Males	2	..	..	..	..	..	..	....	3	2	....	....	..	..	....	....	....	....	3	1	....	....	1	....	....	2	..	7	....	
	Females	..	1	..	..	1	..	..	....	....	....	....	....	..	..	....	....	....	....	....	....	....	1	....	1	..	2	9			
Woodstock	Males	1	1	..	..	..	..	..	....	1	....	1	....	..	..	....	3	....	....	....	....	....	....	....	....	....	....	1	4	....	
	Females	1	..	1	..	..	..	..	....	....	....	....	....	..	..	....	1	....	....	....	1	....	....	....	....	....	....	..	2	6		
Total	Males	42	21	10	15	15	15	17	27	60	62	57	4	..	9	24	37	26	38	40	26	33	25	29	16	25	33	2	354	....	
	Females	30	19	4	18	19	23	23	25	39	59	52	13	..	1	20	23	40	33	28	21	23	32	21	31	21	30	2	325	679	

TABLE No. XVII.—*Concluded.*

TOWNS IN COÖS COUNTY.		Under 1.	1 to 5.	5 to 10.	10 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 to 100.	Over 100.	Unknown.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Unknown.	Total.	Grand total.
Berlin	Males	41	13	1	3	5	1	4	2	2	2	2	..	..	1	3	1	4	3	6	6	16	20	6	3	4	5	..	77	....
	Females	30	12	2	2	6	3	3	1	1	1	..	..	..	..	..	..	2	4	3	6	14	14	7	4	2	4	1	61	138
Carroll	Males	..	..	..	..	..	..	..	3	..	..	..	..	..	1	..	1	1	..	..	..	1	1	..	..	..	..	..	4	....
	Females	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	2	6
Clarksville	Males	1	..	..	..	..	..	..	..	1	1	..	..	..	..	..	1	..	..	1	..	..	..	..	..	1	..	..	3	....
	Females	..	..	..	1	..	..	..	..	..	2	..	..	..	..	..	..	..	1	2	..	..	..	..	..	..	..	..	3	6
Colebrook	Males	2	..	..	2	..	1	..	1	1	3	2	..	..	..	2	1	..	..	2	1	..	1	1	1	..	3	..	12	....
	Females	1	1	..	1	2	..	1	2	..	1	1	..	..	..	..	..	1	1	..	2	..	..	1	1	4	..	..	10	22
Columbia	Males	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	2	....
	Females	..	..	..	1	1	..	1	..	..	2	2	..	..	..	..	..	..	1	2	..	..	1	1	..	2	..	..	7	9
Dalton	Males	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	2	....
	Females	..	..	..	2	..	..	..	..	1	..	2	..	..	..	..	..	2	..	1	1	..	..	..	..	1	..	..	5	7
Dummer	Males	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	....
	Females	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Errol	Males	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....
	Females	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Gorham	Males	1	..	1	1	1	..	1	3	..	1	..	..	..	1	2	..	..	..	1	..	1	1	..	..	2	3	..	10	....
	Females	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	2	12
Jefferson	Males	3	..	..	..	..	..	..	..	2	..	..	..	..	..	..	1	1	1	..	..	..	..	..	1	..	1	..	5	....
	Females	..	1	..	2	..	1	..	1	..	1	..	..	..	..	1	..	1	1	..	1	1	..	..	1	..	..	..	6	11

Lancaster	Males	2	1	..	..	2	1	..	1	6	6	1	....	..	1	1	....	2	3	1	3	1	2	1	....	1	6	..	21	....
	Females	..	..	..	1	3	2	..	1	5	3	2	1	..	..	1	2	....	2	2	....	1	1	5	2	1	1	..	18	39
Milan	Males	2	..	..	..	..	1	..	....	....	1	..	....	..	..	....	....	1	....	....	1	....	....	1	....	....	1	....	..	4	....
	Females	..	..	..	..	..	1	..	....	....	....	....	....	..	..	1	....	....	....	....	....	....	....	....	....	....	....	....	..	1	6
	Not stated	1	..	..	..	..	..	..	....	....	....	....	....	..	..	....	....	....	....	....	....	....	....	....	....	1	....	..	1	....
Millsfield	Males	..	..	..	..	..	..	..	....	....	....	....	....	..	..	....	....	....	....	....	....	....	....	....	....	....	....	..	....	....
	Females	..	..	..	..	..	..	..	....	....	....	....	....	..	..	....	....	....	....	....	....	....	....	....	....	....	....	..	....	....
Northumberland	Males	1	1	..	2	..	..	1	....	2	1	1	....	..	..	....	....	1	2	2	....	2	....	....	1	1	1	..	10	....
	Females	1	1	1	2	1	3	1	....	1	4	....	1	..	1	....	....	....	2	....	2	1	....	4	2	1	2	..	15	25
Pittsburg	Males	..	1	..	1	..	3	1	1	....	....	....	....	2	....	1	....	....	....	2	....	....	....	....	....	....	6	..	9	....
	Females	..	..	..	1	1	1	1	....	1	....	....	....	..	....	1	1	...	....	....	1	1	1	....	....	....	....	..	5	14
Randolph	Males	..	..	..	..	..	..	..	....	....	....	....	....	..	..	....	....	....	....	....	....	....	....	....	....	....	....	..	....	....
	Females	..	..	..	..	..	..	..	1	1	....	....	....	..	..	....	....	....	....	....	....	....	....	....	....	2	....	..	2	2
Shelburne	Males	..	..	..	..	..	..	..	....	....	....	....	....	..	..	....	....	....	....	....	....	....	....	....	....	....	....	..	....	....
	Females	1	..	..	..	..	..	..	....	....	1	....	....	..	..	....	....	....	....	1	....	....	....	....	1	....	....	..	2	2
Stark	Males	1	..	..	..	..	1	..	....	1	2	1	....	..	..	1	....	2	....	....	....	....	....	2	1	....	....		6	....
	Females	..	..	..	..	..	1	..	....	....	....	1	....	..	..	....	....	....	....	....	....	....	....	....	....	2	....	..	2	8
Stratford	Males	3	..	..	1	4	..	..	2	....	2	....	1	..	..	1	2	....	....	....	....	2	1	1	1	2	3	..	13	....
	Females	2	1	..	..	2	..	1	2	2	1	2	1	..	..	....	1	...	1	....	2	4	....	2	2	2	....	..	14	27
Stewartstown	Males	2	1	..	1	..	1	1	1	1	2	1	1	1	1	2	3	1	1	....	....	....	1	4	....	....	2	..	14	....
	Females	3	..	..	..	..	..	1	1	....	2	1	1	..	..	....	1	....	....	....	2	....	....	1	3	2	....	..	9	23
Whitefield	Males	2	..	..	..	2	2	..	....	4	4	1	....	..	..	....	....	....	....	....	2	1	5	4	1	2	....	..	15	....
	Females	1	2	1	1	2	..	1	2	....	1	....	....	..	1	....	3	3	2	....	2	....	1	1	....	....	....	..	12	....
	Not stated	..	..	..	..	..	..	..	....	....	....	....	....	..	1	....	....	....	....	....	....	....	....	....	....	....	....	1	1	28
Total	Males	62	17	3	12	14	11	8	15	21	26	9	2	1	7	12	13	12	10	16	12	25	33	19	10	16	30	..	208	....
	Females	40	19	3	14	18	12	10	12	13	19	11	4	..	1	4	8	11	16	10	19	22	19	22	17	20	7	1	176	....
	Not stated	1	..	..	..	..	..	..	....	....	....	....	....	..	1	....	....	....	....	....	....	....	....	....	....	1	....	1	2	386

TABLE

Deaths by Sex,

COUNTIES.		Under 1.	1 to 5.	5 to 10.	10 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.
Rockingham	Males	73	26	5	17	34	44	28	41	70	88	66
	Females	52	23	12	17	32	28	29	42	68	78	84
	Not stated	1										
Strafford	Males	63	18	11	16	31	23	23	29	40	51	18
	Females	56	23	9	19	31	32	42	32	41	56	30
	Not stated	1										
Belknap	Males	35	19	6	4	9	7	14	16	17	26	20
	Females	21	19	2	6	14	12	6	14	25	35	22
	Not stated											
Carroll	Males	15	4	6	8	15	6	15	8	18	26	14
	Females	15	11	4	12	8	13	11	15	15	29	19
	Not stated	2										
Merrimack	Males	74	31	8	21	28	35	36	45	71	89	48
	Females	77	31	6	22	44	30	40	49	55	80	72
	Not stated	1										
Hillsborough	Males	282	73	13	36	59	60	58	72	113	107	59
	Females	232	93	24	39	83	67	81	80	76	101	87
	Not stated											
Cheshire	Males	47	28	5	12	17	20	20	26	41	59	35
	Females	32	19	7	10	20	21	25	11	38	42	23
	Not stated											
Sullivan	Males	23	14	2	5	13	6	6	13	27	34	16
	Females	19	8		10	14	14	10	14	19	38	25
	Not stated											
Grafton	Males	42	21	10	15	15	15	17	27	60	62	57
	Females	30	19	4	18	19	23	23	25	39	59	52
	Not stated											
Coös	Males	62	17	3	12	14	11	8	15	21	26	9
	Females	40	19	3	14	18	12	10	12	13	19	11
	Not stated	1										
Total	Males	716	251	69	146	238	227	225	292	478	568	342
	Females	574	265	71	167	283	252	277	294	389	537	431
	Not stated	6										

No. XVIII.

*Age, and Month.**

90 to 100.	Over 100.	Unknown.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Unknown.	Total.	Grand total.
8	....	5	41	43	34	41	53	33	48	50	42	32	33	54	15	505	.....
17	1	6	41	43	33	41	35	38	46	44	30	41	32	64	1	489	.....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	995
4	2	8	24	31	37	31	30	21	22	36	24	30	21	32	1	340	.....
8	....	4	26	53	38	27	29	24	32	27	27	31	28	39	2	383	.....
....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	1	724
1	....	2	12	15	11	17	17	10	11	21	22	18	10	12	....	176	.....
1	....	3	15	13	13	13	21	21	16	17	12	14	10	13	2	180	356
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.....
4	....	1	10	10	11	13	13	9	10	14	10	12	13	14	1	140	.....
4	....	3	12	11	7	20	14	10	9	13	17	17	10	18	1	159	.....
....	....	....	....	....	....	....	....	....	1	....	1	....	....	....	....	2	301
3	....	8	47	28	36	50	49	34	53	44	41	25	41	49	....	497	.....
13	....	1	48	31	40	58	48	31	40	50	47	32	41	54	....	520	.....
....	....	1	1	1	....	....	....	....	....	....	....	....	....	....	....	2	1,019
3	....	27	88	83	69	71	68	51	112	104	96	81	55	83	1	962	.....
23	1	21	84	57	75	75	86	69	101	105	93	71	70	120	2	1,008	.....
....	....	2	1	....	....	....	....	....	....	....	1	....	....	....	....	2	1,972
3	1	1	32	25	19	33	30	23	28	34	24	18	24	25	....	315	.....
9	....	2	13	23	22	20	29	17	27	19	23	18	22	30	2	265	580
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.....
3	1	4	14	15	18	14	13	14	19	15	6	13	11	15	....	167	.....
6	1	1	15	8	19	17	17	13	5	16	20	24	11	14	....	179	346
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.....
4	....	9	24	37	26	38	40	26	33	25	29	16	25	33	2	354	.....
13	....	1	20	23	40	33	28	21	23	32	21	31	21	30	2	325	679
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.....
2	1	7	12	13	12	10	16	12	25	33	19	10	16	30	....	208	.....
4	....	1	4	8	11	16	10	19	22	19	22	17	20	7	1	176	.....
....	....	1	....	....	....	....	....	....	....	....	....	....	1	....	1	2	386
35	5	72	304	300	273	318	329	233	361	376	313	255	249	347	6	3,664	.....
98	3	43	278	270	298	320	317	263	321	342	312	296	265	389	13	3,684	.....
....	....	4	2	1	....	....	....	....	2	....	2	....	1	....	2	10	7,358

* Not including premature and still births.

TABLE No. XIX.

Causes of Death alphabetically arranged by Ages, Sex, and Months.

Asterisk indicates classed with males.

Sex.	Months. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Unknown.	CAUSES OF DEATH.	Whole number. Male.	Female.	Unknown.	Total.	Ages. Under 1.	1 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Unknown.
M..	..	..	..	..	..	..	..	..	1	..	..	..	..	Abscess	1	2	....	3	....	....	....	....	....	....	1	....	....	....	....	....	....
F..	..	1	..	..	..	..	..	..	..	..	1	..	..	"	....	....	....	....	1	....	....	....	....	....	....	....	....	1	....	....	....
F..	..	..	..	..	..	..	..	..	..	..	1	..	..	" of neck	....	1	....	1	....	....	....	....	....	....	....	....	....	....	....	1	....
M..	..	..	..	..	..	..	..	..	1	..	..	..	..	" of abdomen	1	2	....	3	....	....	....	....	....	....	1	....	....	....	....	....	....
F..	..	..	..	..	..	1	..	1	..	..	..	..	..	" "	....	....	....	....	....	....	1	....	....	....	1	....	....	....	....	....	....
M..	..	..	..	..	..	1	..	..	..	..	..	..	..	" of brain	1	3	....	4	....	....	....	....	....	....	1	....	....	....	....	....	....
F..	..	..	..	1	1	..	1	..	..	..	..	..	..	" "	....	....	....	....	....	....	1	....	....	....	1	1	....	....	....	....	....
M..	..	..	..	..	..	..	..	..	..	..	..	..	..	" of liver	....	2	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....
F..	..	..	..	..	..	..	..	..	1	1	..	..	..	" "	....	....	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....
M..	..	..	..	1	1	1	..	..	..	..	..	..	..	" of lungs	3	....	....	3	....	....	....	....	....	....	....	1	....	1	1	....	....
M..	1	..	..	..	..	..	..	..	..	..	..	..	..	" of pelvis	1	1	....	2	1	....	....	....	....	....	....	....	....	....	....	....	....
F..	..	..	..	..	..	..	1	..	..	..	..	..	..	" "	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....
M..	..	..	..	..	..	..	..	1	1	..	..	..	..	" of rectum	2	....	....	2	1	1	....	....	....	....	....	....	....	....	....	....	....
M..	..	..	..	..	1	..	..	..	..	1	..	1	..	Albumenuria	3	2	....	5	....	....	....	....	1	....	1	....	....	....	1	....	....
F..	..	..	..	..	..	1	..	1	..	..	..	..	..	"	....	....	....	....	....	....	....	....	....	1	....	....	....	....	1	....	....
M..	..	1	..	..	1	..	1	..	..	..	..	..	..	Addison's disease	3	1	....	4	....	....	....	....	....	....	....	3	....	....	....	....	....
F..	..	..	..	..	..	..	..	1	..	..	..	..	..	"	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....
M..	2	2	3	1	3	..	1	1	..	..	1	..	..	Alcoholism	14	1	....	15	....	....	....	....	1	2	4	1	3	2	1	....	....
F..	..	..	..	..	..	..	..	1	..	..	..	..	..	"	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....
M..	5	6	2	3	7	8	5	3	5	6	3	5	..	Accident	58	9	....	67	1	1	1	....	3	9	10	6	9	9	4	3	2
F..	1	..	..	3	2	2	1	..	..	..	..	..	..	"	....	....	....	....	....	1	2	....	....	....	....	1	1	2	....	2	....
M..	..	2	3	..	..	..	1	2	..	..	1	1	..	Anæmia	9	16	1*	26	7	....	....	....	....	....	....	....	....	3	....	....	....
F..	2	2	1	2	..	3	2	2	..	..	1	1	..	"	....	....	....	....	1	....	1	....	2	2	3	....	1	4	1	1	....
F..	..	..	2	..	..	..	..	..	..	..	..	..	..	Aneurism	2	2	....	4	....	....	....	....	1	....	....	....	....	....	1	....	....
M..	1	..	..	..	..	..	1	..	..	..	..	..	..	"	....	....	....	....	....	1	....	....	....	....	....	....	1	....	....	....	....
F..	..	1	1	1	1	3	..	..	1	2	3	3	..	Angina pectoris	17	16	....	33	....	....	....	....	1	1	....	1	1	4	6	2	....
M..	1	1	1	1	..	4	..	2	1	2	2	2	..	" "	....	....	....	....	1	....	....	....	....	....	1	1	1	5	6	2	..

| | | |

TABLE No. XIX.—*Continued.*

Sex.	Months. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Unknown.	CAUSES OF DEATH.	Whole number. Male.	Female.	Unknown.	Total.	Ages. Under 1.	1 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Unknown.
F.	..	..	1	..	..	..	..	..	1	..	..	..	..	alculus	1	2	....	3	....	....	....	....	....	....	....	1	1	....	....	....	....
M.	..	..	..	..	..	..	..	..	..	..	..	..	1	"	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....
F.	9	10	10	11	7	8	9	10	10	5	6	8	2	Cancer	44	105	....	149	....	....	....	....	....	1	5	18	28	21	18	13	1
M.	3	5	1	3	4	6	6	1	4	6	1	4	..	"	....	....	....	....	....	....	....	....	....	....	....	7	5	12	9	9	2
M.	..	1	..	..	..	..	..	..	..	..	..	..	..	" of arm	1	....	....	1	....	....	....	....	....	....	....	....	....	....	1	....	....
M.	..	..	1	..	..	..	..	..	..	..	..	..	..	" of neck	1	....	....	1	....	....	....	....	....	....	....	....	....	....	1	....	....
F.	..	..	..	..	..	..	..	..	..	..	..	..	..	" of bladder	3	....	....	3	....	....	....	....	....	....	....	....	....	....	....	....	....
M.	..	..	..	..	..	..	..	..	..	..	..	3	..	" "	....	....	....	....	....	....	....	....	....	....	....	....	....	2	1	....	....
F.	..	1	1	..	..	1	..	..	..	..	..	1	..	" of bowels	6	4	....	10	....	....	....	....	....	....	....	....	....	1	3	....	....
M.	1	..	..	..	..	2	1	..	1	..	..	1	..	" "	....	....	....	....	....	....	....	....	....	2	....	1	1	2	....	....	....
F.	1	..	..	..	..	..	2	1	..	4	2	1	..	" of breast	....	11	....	11	....	....	....	....	....	....	....	1	3	5	2	....	....
F.	1	..	..	..	..	..	1	..	..	..	..	..	..	" of face	7	2	....	9	....	....	....	....	....	....	....	1	1	....	....	....	....
M.	2	..	2	..	1	..	1	1	..	..	..	..	..	" "	....	....	....	....	....	....	....	....	....	....	....	....	1	1	2	2	1
F.	..	..	1	..	..	..	..	..	..	..	..	..	..	" of lip	1	1	....	2	....	....	....	....	....	....	....	....	....	1	....	....	....
M.	..	..	..	..	..	..	..	..	..	..	..	1	..	" "	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....
F.	2	1	..	2	..	1	1	..	1	..	1	1	..	" of liver	4	10	....	14	....	....	....	....	....	....	....	1	4	2	2	1	....
M.	1	1	1	..	..	..	..	..	1	..	..	..	..	" "	....	....	....	....	....	....	....	....	....	....	....	....	1	1	1	1	....
M.	..	..	1	..	1	..	..	..	..	..	..	1	..	" of throat	3	....	....	3	....	....	....	....	....	....	....	....	....	1	2	....	....
F.	1	1	..	..	..	1	1	..	1	..	..	1	..	" of omentum	....	6	....	6	....	....	....	....	....	....	1	2	1	....	2	....	....
M.	..	..	..	1	..	..	..	1	..	..	..	1	..	" of penis	3	....	....	3	....	....	....	....	....	....	....	....	2	....	....	1	....
F.	..	1	..	..	..	..	..	..	..	..	..	..	..	" of rectum	4	1	....	5	....	....	....	....	....	....	....	....	....	....	1	....	....
M.	..	..	1	..	..	1	..	..	1	..	..	1	..	" "	....	....	....	....	....	....	....	....	....	....	....	....	....	3	1	....	....
F.	2	..	2	..	2	2	2	..	6	2	2	3	..	" of stomach	27	23	....	50	....	....	....	....	....	1	2	4	6	5	2	2	1
M.	2	2	1	1	3	3	4	4	2	2	2	1	..	" "	....	....	....	....	....	....	....	....	1	....	....	7	7	5	5	2	....
M.	..	1	..	..	..	..	..	..	..	..	1	..	..	" of tongue	2	....	....	2	....	....	....	....	....	....	....	....	1	....	....	....	1
F.	1	..	..	..	..	..	..	..	..	..	..	..	..	" of hip	....	1	....	1	....	....	....	....	....	....	....	....	....	....	1	....	....
F.	1	2	1	..	..	..	1	1	2	3	2	..	..	" of uterus	....	13	....	13	....	....	....	....	....	....	1	6	2	3	1	....	....
F.	..	..	..	..	..	..	..	..	..	..	..	1	..	Carbuncle	1	1	....	2	....	....	....	....	....	....	....	1	....	....	....	....	....

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TABLE No. XIX.—*Continued.*

Sex.	Months. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Unknown.	CAUSES OF DEATH.	Whole number. Male.	Female.	Unknown.	Total.	Ages. Under 1.	1 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Unknown.
M.	..	2	2	3	2	1	1	3	1	1	1	1	..	Diabetes	....	....	....	....	....	1	....	1	1	2	3	1	4	2	3	....	....
F.	1	..	..	..	..	1	3	3	4	2	6	1	..	Diarrhœa	29	21	....	50	10	....	....	....	....	1	....	....	2	4	2	2	....
M.	3	3	4	..	..	..	4	6	4	2	2	1	..	"	....	....	....	....	11	2	....	....	....	....	....	3	4	2	3	4	....
F.	..	5	3	3	3	4	7	2	..	4	3	4	..	Diphtheria	25	38	....	63	2	18	10	5	....	2	1	....	....	....	....	....	....
M.	2	1	..	4	1	3	4	2	4	2	1	1	..	"	....	....	....	....	4	5	9	4	1	1	....	1	....	....	....	....	....
F.	5	4	3	..	4	5	3	..	3	1	3	2	..	Dropsy	16	33	....	49	....	....	....	....	....	2	....	2	7	6	10	6	....
M.	4	..	1	2	1	1	3	..	1	1	1	1	..	"	....	....	....	....	....	1	....	....	....	....	....	2	1	6	5	1	....
F.	..	..	1	..	1	..	..	..	1	..	1	..	..	Drowned	46	4	....	50	....	2	....	....	....	....	....	2	....	....	....	....	....
M.	..	2	1	1	7	4	4	16	3	2	5	..	1	"	....	....	....	....	....	3	4	7	9	12	6	3	1	....	....	....	1
F.	..	..	1	1	..	..	3	14	9	10	3	..	..	Dysentery	22	41	....	63	8	8	....	....	1	1	2	4	1	1	6	9	....
M.	..	1	..	..	1	..	4	3	7	2	2	2	..	"	....	....	....	....	4	4	1	....	....	....	1	2	....	1	5	4	....
F.	..	..	..	..	..	..	..	1	..	..	..	..	1	Dyspepsia	5	2	....	7	1	....	....	....	....	....	....	....	1	....	....	....	....
M.	1	1	..	..	..	2	..	..	..	..	..	1	..	"	....	....	....	....	2	....	....	....	....	....	....	....	2	1	....	....	....
M.	..	1	..	..	..	..	..	..	..	..	..	..	..	Eczema	1	1	....	2	1	....	....	....	....	....	....	....	....	....	....	....	....
F.	..	..	..	..	..	..	..	..	..	1	..	..	..	"	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....
F.	..	..	..	..	..	..	..	..	..	1	..	1	..	Embolism	....	2	....	2	....	....	....	....	....	....	....	....	....	1	1	....	....
M.	..	..	..	..	..	..	..	1	..	..	..	1	..	Empyema	2	2	....	4	....	....	....	1	....	....	....	1	....	....	....	....	....
F.	..	..	..	..	..	..	..	..	1	1	..	..	..	"	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....
M.	..	..	1	1	..	..	..	1	..	..	..	..	..	Encephalitis	3	2	....	5	....	1	....	....	....	....	1	....	1	....	....	....	....
F.	..	..	..	..	1	..	..	1	..	..	..	..	..	"	....	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....
M.	1	1	..	..	2	..	1	3	..	..	..	..	..	Endocarditis	8	7	....	15	1	....	....	....	1	1	1	1	....	2	1	....	....
F.	..	..	1	..	1	..	..	1	..	..	1	3	..	"	....	....	....	....	....	1	....	....	1	1	1	1	....	1	1	....	....
F.	1	1	2	1	..	..	..	2	3	1	..	2	..	Enteritis	15	13	....	28	4	1	....	1	....	1	1	....	1	..	1	3	....
M.	1	..	..	1	..	..	4	3	..	4	..	2	..	"	....	....	....	....	7	1	1	2	....	....	2	....	....	....	1	1	....
F.	..	..	..	..	..	..	..	..	..	2	1	..	..	Entero-colitis	1	3	....	4	....	....	....	....	....	1	....	....	1	1	....	....	....
M.	..	..	..	..	..	..	..	..	1	..	..	..	..	"	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....
F.	3	..	3	2	..	..	2	1	..	3	..	..	..	Epilepsy	9	14	....	23	1	1	....	....	1	2	1	3	2	2	1	....	....
..	..	..	2	1	..	2	..	1	1	..	1	1	..	"	....	....	....	....	....	....	....	....	1	1	1	1	3	2	....	....	....

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TABLE No. XIX.—*Continued.*

Sex.	Months. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Unknown.	CAUSES OF DEATH.	Whole number. Male.	Female.	Unknown.	Total.	Ages. Under 1.	1 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Unknown.
F.	..	1	..	1	..	1	..	..	..	..	..	..	..	Heart, hypertrophy of	6	3	....	9	....	....	....	....	....	1	....	....	1	1	....	....	....
M.	..	3	..	1	..	..	1	1	..	..	..	..	..	" "	....	....	....	....	....	....	....	....	1	....	....	....	1	3	1	....	....
M.	..	..	..	1	..	..	..	..	..	2	..	..	..	" thrombosis of	3	....	....	3	....	....	....	....	....	....	....	....	....	2	1	....	....
F.	1	..	..	..	..	..	..	..	..	..	..	..	..	" rupture of	....	1	....	1	....	....	....	....	....	....	....	....	....	....	1	....	....
F.	7	3	4	11	5	8	5	4	5	4	7	9	..	" failure	62	72	2*	136	12	....	....	1	1	4	5	4	6	10	18	10	1
M.	2	7	6	4	7	4	8	7	4	5	3	7	..	" "	....	....	....	....	13	3	1	....	2	3	3	5	4	8	13	9	....
F.	..	..	..	..	..	..	..	..	..	1	..	..	..	" clot	....	1	....	1	1	....	....	....	....	....	....	....	....	....	....	....	....
F.	1	..	..	..	..	..	..	..	..	..	..	1	..	Hemiplegia	3	2	....	5	....	....	....	....	....	....	....	....	....	....	1	1	....
M.	1	..	..	..	..	..	..	1	1	..	..	..	..	"	....	....	....	....	....	....	....	....	....	....	....	....	....	3	....	....	....
F.	2	..	1	1	..	1	1	..	1	..	2	1	..	Hemorrhage	8	10	....	18	1	....	....	1	2	....	2	2	1	....	1	....	....
M.	..	2	..	..	1	..	1	1	..	..	1	2	..	"	3	1	....	4	1	....	....	....	1	....	....	1	1	....	....	....	1
M.	..	..	..	..	1	..	..	..	..	..	..	..	..	" of bowels	1	....	....	1	....	....	....	....	....	....	....	....	....	....	1	....	....
F.	..	1	..	..	2	..	..	..	1	..	..	1	..	Hepatitis	5	5	....	10	....	....	....	....	....	....	1	....	....	3	1	....	....
M.	..	..	2	1	1	..	..	..	1	..	..	..	..	"	....	....	....	....	....	....	....	....	....	....	1	....	2	2	....	....	....
F.	2	..	1	..	1	1	..	..	..	..	..	..	..	Hernia	11	5	....	16	1	....	....	....	....	....	....	....	....	....	3	1	....
M.	..	1	1	2	1	1	..	1	..	2	1	1	..	"	....	....	....	....	2	....	....	....	....	....	1	....	1	3	3	....	1
F.	..	..	1	..	1	..	1	3	2	..	1	1	..	Hydrocephalus	13	10	....	23	5	3	....	....	....	....	....	....	....	....	....	....	2
M.	..	1	..	2	1	2	1	2	2	1	..	1	..	"	....	....	....	....	6	7	....	....	....	....	....	....	....	....	....	....	....
F.	..	..	..	..	..	..	..	..	..	..	..	1	..	Hydrothorax	....	1	....	1	....	....	....	....	....	....	....	....	....	1	....	....	....
F.	..	..	..	..	..	..	1	..	..	..	..	2	..	Indigestion	5	3	....	8	3	....	....	....	....	....	....	....	....	....	....	....	....
M.	..	1	..	..	..	1	2	..	..	..	1	..	..	"	....	....	....	....	2	1	1	....	....	....	....	....	....	1	....	....	....
F.	..	..	..	..	..	..	..	..	..	..	..	..	..	Inflammation of kidneys	1	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....
M.	..	..	..	..	..	..	1	..	..	..	..	..	..	" "	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....
F.	1	1	1	..	..	..	..	..	2	1	..	..	..	" of bowels	16	6	....	22	....	....	....	....	....	....	1	....	1	1	1	2	....
M.	2	2	2	..	2	..	..	..	2	3	2	1	..	" "	....	....	....	....	....	5	....	....	2	1	....	1	1	2	2	1	1
F.	..	..	..	..	..	..	..	..	..	..	..	..	..	" of stomach	3	....	....	3	....	....	....	....	....	....	....	....	....	....	....	....	....
M.	..	..	1	..	..	..	..	1	..	1	..	..	..	" "	....	....	....	....	....	....	....	....	....	....	....	....	....	2	1	....	....
F.	1	3	1	8	6	1	1	1	2	1	3	15	1	Influenza	47	44	....	91	3	4	....	1	3	1	2	2	1	4	11	12	....

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TABLE No. XIX.—*Continued.*

Sex.	Months. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Unknown.	CAUSES OF DEATH.	Whole number. Male.	Female.	Unknown.	Total.	Ages. Under 1.	1 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Unknown.
F..	..	..	..	..	..	..	..	..	..	1	..	1	..	Myelitis	....	2	....	2	....	....	....	....	....	....	1	....	....	1	....	....	....
F..	..	..	..	..	..	..	..	..	..	..	..	..	..	Necrosis	1	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....
M..	1	..	..	..	..	..	..	..	..	..	..	..	..	"	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....
F..	3	6	2	9	7	9	2	4	2	5	5	1	..	Nephria (Bright's disease)	68	55	....	123	....	....	....	3	....	5	7	7	7	10	11	5	....
M..	10	5	9	5	5	8	4	6	3	4	5	4	..	" " "	....	....	....	....	....	5	2	1	....	3	8	7	6	16	19	1	....
F..	1	..	2	1	2	2	1	1	2	..	2	1	..	Nephritis	21	15	....	36	2	3	....	....	2	2	1	1	3	....	1	....	....
M..	1	5	1	2	2	..	2	1	2	1	3	1	..	"	....	....	....	....	....	1	....	....	1	....	2	3	2	3	8	1	....
F..	..	..	1	..	1	..	1	1	1	1	..	..	..	Nervous prostration	3	6	....	9	....	....	....	....	1	....	1	1	1	2	....	....	....
M..	1	..	..	..	..	..	..	1	..	..	..	1	..	"	....	....	....	....	....	....	....	....	....	....	....	....	1	1	....	1	....
F..	..	1	..	..	..	..	..	..	..	..	..	..	..	Neuralgia	....	1	....	1	....	....	....	....	....	....	....	....	....	....	1	....	....
F..	..	2	..	2	..	..	..	..	..	1	2	2	..	" of heart	2	9	....	11	....	....	....	....	....	....	....	1	2	3	1	2	....
M..	..	..	..	..	..	..	..	..	1	..	1	..	..	" "	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	1
F..	..	..	..	..	..	..	..	..	1	1	..	..	..	Neurasthenia	....	2	....	2	....	....	....	....	....	1	....	....	....	1	....	....	....
F..	..	..	..	..	..	..	..	..	..	..	..	..	..	Noma (canker)	1	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....
M..	..	..	..	..	..	..	..	..	1	..	..	..	..	" "	....	1	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....
F..	19	17	14	13	15	15	28	19	18	21	5	14	..	Not stated	200	196	....	396	85	26	4	1	2	11	8	9	6	9	14	9	12
M..	22	12	11	19	16	9	31	13	24	13	14	16	..	"	....	....	....	....	106	11	1	3	1	5	7	6	12	5	16	10	17
F..	..	1	..	..	..	..	..	..	..	..	..	..	..	Nymphomania	....	1	....	1	....	....	1	....	....	....	....	....	....	....	....	....	....
F..	1	..	1	..	1	..	1	..	..	1	1	..	..	Oedema of lungs	4	6	....	10	....	....	1	....	....	....	....	2	2	....	1	....	....
M..	..	..	..	1	..	..	..	..	..	1	..	2	..	" "	....	....	....	....	....	....	....	....	....	....	....	....	1	1	1	1	....
F..	22	14	26	19	19	14	21	14	15	23	28	26	3	Old age	160	244	....	404	....	....	....	....	....	....	....	....	....	....	2	41	199	2
M..	13	15	10	14	13	18	8	19	11	8	12	19	..	"	....	....	....	....	....	....	....	....	....	....	....	....	....	....	3	37	116	4
F..	1	1	1	..	..	..	..	..	..	..	1	..	..	Ovarian dropsy	....	4	....	4	....	....	....	....	....	....	....	....	2	1	1	....	....
M..	..	..	..	..	..	..	1	..	..	..	..	..	..	Over mental work	1	....	....	1	....	....	....	....	....	....	....	1	....	....	....	....	....
F..	11	13	9	11	12	8	8	10	4	18	7	17	..	Paralysis	104	128	....	232	....	....	....	....	....	2	6	7	9	26	48	30	....
M..	11	9	4	15	9	6	14	18	7	5	6	10	..	"	....	....	....	....	2	1	....	....	....	....	1	2	9	29	45	15	....
F..	..	..	..	..	..	..	..	..	..	..	..	2	..	" of heart	8	2	....	10	....	....	....	....	....	....	....	1	....	1	....	....	....
M..	..	1	..	..	2	2	..	2	..	..	..	1	..	" "	....	....	....	....	2	....	1	....	....	1	....	1	....	....	1	2	....

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TABLE No. XIX.—*Continued.*

Sex.	Months. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Unknown.	CAUSES OF DEATH.	Whole number. Male.	Female.	Unknown.	Total.	Ages. Under 1.	1 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Unknown.
F..	..	1	..	1	..	..	..	..	..	..	..	1	..	Spina bifida	2	3	....	5	3	....	....	....	....	....	....	....	....	....	....	....	....
M..	..	..	..	..	..	1	..	1	..	..	..	..	..	"	....	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....
F..	..	..	..	..	..	..	..	..	..	..	..	..	..	Spine disease	1	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....
M..	..	..	1	..	..	..	..	..	..	..	..	..	..	"	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....
F..	..	..	2	..	1	..	1	..	..	..	1	..	..	Spinal meningitis	4	5	....	9	1	1	....	....	....	1	....	1	1	....	....	....	....
M..	1	..	..	..	1	..	1	..	..	1	..	..	..	"	....	....	....	....	2	1	....	....	....	....	....	....	1	....	....	....	....
F..	..	..	..	..	..	..	..	..	..	..	..	..	..	Spleen disease	1	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....
M..	..	1	..	..	..	..	..	..	..	..	..	..	..	"	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....
F..	9	7	11	8	2	8	12	6	9	7	3	5	1	Still-born	104	88	*11	203	88	....	....	....	....	....	....	....	....	....	....	....	....
M..	8	10	13	17	8	10	9	7	7	4	11	8	3	"	....	....	....	....	115	....	....	....	....	....	....	....	....	....	....	....	....
F..	..	1	2	1	..	2	..	3	1	1	1	..	..	Stomach disease	6	12	....	18	1	....	....	....	....	....	1	....	5	2	3	....	....
M..	..	..	..	..	2	..	..	..	1	1	..	2	..	" "	....	....	....	....	1	1	....	....	....	....	....	....	1	2	....	1	....
F..	..	..	..	..	..	..	..	..	..	1	..	..	..	Stricture of intestines	1	1	....	2	....	....	....	....	....	....	....	....	....	1	....	....	....
M..	..	..	..	..	..	..	..	..	1	..	..	..	..	" "	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....
F..	..	..	..	..	..	..	..	..	..	1	..	..	..	Suffocation	2	1	....	3	....	....	....	....	....	1	....	....	....	....	....	....	....
M..	1	..	1	..	..	..	..	..	..	..	..	..	..	"	....	....	....	....	....	....	....	....	....	1	....	1	....	....	....	....	....
F..	..	..	1	..	1	1	1	1	1	2	1	1	..	Suicide	22	10	....	32	....	....	....	....	....	2	3	1	2	2	....	....	....
M..	2	4	2	3	..	..	1	2	6	..	1	1	..	"	....	....	....	....	....	....	....	....	1	1	5	2	4	7	2	....	....
F..	..	..	..	..	..	..	..	2	..	1	..	..	..	Syphilis	....	3	....	3	1	1	....	....	....	....	1	....	....	....	....	....	....
F..	1	1	1	..	2	1	..	3	..	1	1	1	..	Tabes mesenterica	9	12	....	21	....	....	1	....	1	5	1	....	1	2	1	....	....
M..	1	..	..	1	2	..	..	..	..	1	2	2	..	"	....	....	....	....	1	1	....	1	....	1	1	1	1	1	1	....	....
F..	..	..	..	..	1	..	1	1	..	..	..	..	..	Teething	9	3	....	12	2	1	....	....	....	....	....	....	....	....	....	....	....
M..	..	..	..	..	..	..	2	3	..	2	2	..	..	"	....	....	....	....	7	2	....	....	....	....	....	....	....	....	....	....	....
F..	1	..	..	..	..	..	..	..	..	..	..	..	..	Tonsilitis	1	1	....	2	1	....	....	....	....	....	....	....	....	....	....	....	....
M..	..	..	..	..	..	..	..	..	..	..	1	..	..	"	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
F..	1	..	..	1	..	1	..	1	..	..	..	..	..	Tumor	....	4	....	4	....	....	....	....	....	....	....	1	....	3	....	....	....
F..	1	..	..	..	..	..	..	..	..	..	1	..	..	" of brain	....	2	....	2	1	....	....	....	....	1	....	....	....	....	....	....	....
F..	..	..	..	..	..	..	1	1	1	..	..	..	..	" of bowels	3	3	....	6	....	....	....	....	....	....	....	....	1	2	....	....	....

| | | |

TABLE No. XX.

*Deaths by Sex, Age, and Months.**

MONTHS.	SEX.	Under 1.	1 to 5.	5 to 10.	10 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Unknown.	Total.
January	Males	40	19	1	14	22	14	25	24	42	60	36	9	304
	Females	39	11	5	11	23	14	17	28	35	46	45	4	278
	Not stated												2	2
February	Males	43	14	5	15	28	18	23	35	29	50	34	6	300
	Females	31	15	7	7	16	20	42	22	33	32	38	7	270
	Not stated	1												1
March	Males	48	19	2	8	24	18	16	27	34	42	31	4	273
	Females	36	16	5	20	21	17	21	22	36	55	48	1	298
	Not stated													
April	Males	49	29	10	14	16	27	21	26	35	52	37	2	318
	Females	33	20	10	21	32	22	20	28	31	55	44	4	320
	Not stated													
May	Males	41	29	8	13	25	27	21	20	44	57	38	6	329
	Females	34	22	4	12	24	26	20	23	36	53	54	9	317
	Not stated													
June	Males	31	18	8	12	17	17	14	16	35	36	27	2	233
	Females	24	25	7	12	27	18	21	20	24	47	37	1	263
	Not stated													
July	Males	98	30	10	13	20	24	15	24	46	45	27	9	361
	Females	77	22	9	13	27	28	21	22	32	29	34	7	321
	Not stated	2												2

August	Males	135	21	5	18	13	17	17	24	39	45	37	5	376
	Females	113	32	5	9	21	28	17	25	25	35	28	4	342
	Not stated													
September	Males	102	25	3	9	22	20	13	15	34	34	30	4	313
	Females	89	29	5	19	20	17	16	26	24	25	40	2	312
	Not stated	2												2
October	Males	51	13	5	8	15	10	16	32	38	35	28	4	255
	Females	43	22	3	14	23	21	22	22	26	46	43	1	296
	Not stated													
November	Males	38	11	7	12	18	10	13	17	50	45	19	9	249
	Females	24	21	3	15	24	16	23	26	26	41	45	1	265
	Not stated	1												1
December	Males	38	23	5	10	18	25	31	32	51	67	37	10	347
	Females	28	26	8	13	24	25	37	28	51	73	74	2	389
	Not stated													
No date	Males	2								1		1	2	6
	Females	3	4		1	1			2			2		13
	Not stated												2	2
Total	Males	716	251	69	146	238	227	225	292	478	568	382	72	3,664
	Females	574	265	71	167	283	252	277	294	389	537	532	43	3,684
	Not stated	6											4	10

* Not including premature and still births.

SUMMARY OF REGISTRATION REPORT.

The record of the vital statistics, carefully maintained from year to year, becomes of great importance to the state by indicating the movement of the population as well as determining certain conditions necessary to be known in order to formulate and carry out such laws, rules, and regulations as may be necessary for the greatest good of a community. Especially is this true in relation to the death records which form the true indicator in many instances for sanitary work. We are fortunate in this state in having already arrived at that period when the vital statistics have come to be of sufficient accuracy and completeness to make them valuable from a sanitary standpoint.

We are able to include in our observations the statistics of a decade, and to derive from them much that is of importance relating to the prevalence of the cause of mortality, and thus suggest to the health authorities certain lines of action in order to reduce an excessive mortality in a given locality.

The following tables, covering a series of years, chiefly from 1882 to 1893 inclusive, furnish reliable statistics relating to many phases of questions connected with the birth, marriage, divorce, and death records for the period named.

TABLE No. 1.

Population of Counties in 1880 *and* 1890.

COUNTIES.	1880.	1890.
Rockingham	49,064	49,650
Strafford	35,558	38,442
Belknap	17,948	20,321
Carroll	18,224	18,124
Merrimack	46,300	49,435
Hillsborough	75,634	93,247
Cheshire	28,734	29,579
Sullivan	18,161	17,304
Grafton	38,788	37,217
Coös	18,580	23,211
Total	346,991	376,530

Table No. 1 shows the population by counties according to the United States census of 1880 and 1890. It is from these tables that our deductions as to the population for each year are arrived at.

TABLE No. 2.

Population of New Hampshire for each Year from 1880 *to* 1893 *inclusive.*

YEARS.	Population.	YEARS.	Population.
1880	346,991	1887	367,728
1881	349,952	1888	370,689
1882	352,913	1889	373,650
1883	355,874	1890	376,530
1884	358,845	1891	379,491
1885	361,806	1892	382,452
1886	364,767	1893	385,413

Table No. 2 represents the population of New Hampshire for each year from 1880 to 1893 inclusive, and is calculated from the census returns of 1880 and 1890. In this table the population for each year except 1880 and 1890 is calculated, and is believed to be approximately correct. The figures in the table mentioned are estimated upon the basis that there has been a steady increase in the population in the same ratio as was shown between the census returns of the two years named.

TABLE No 3.

Births, Marriages, and Deaths, with the Population and Rates, for 1884 *to* 1893, *inclusive.*

YEARS.	Population.	Births.	Marriages.	Deaths.	Birth-rate per 1,000.	Persons married to 1,000.	Death-rate per 1,000.
1884	358,845	6,247	3,292	6,194	17.40	18.34	17.26
1885	361,806	6,319	3,180	6,201	17.46	17.56	17.13
1886	364,767	6,657	3,324	6,426	18.24	18.22	17.61
1887	367,728	6,910	3,495	6,479	18.78	19.00	17.61
1888	370,689	6,443	3,379	6,854	17.38	18.22	18.48
1889	373,650	6,912	3,621	6,696	18.49	19.36	17.91
1890	376,530	6,946	3,621	7,368	18.44	19.22	19.56
1891	379,491	7,510	3,904	7,310	19.94	20.72	19.41
1892	382,452	7,746	4,074	7,988	20.25	21.30	20.88
1893	385,413	8,348	4,090	7,663	22.17	21.22	20.35

Table No. 3 shows the population, number of births, marriages, deaths, with the birth-rate, marriage-rate, and death-rate to each 1,000 of the population, for the years 1884 to 1893, inclusive. It will be seen by this table that there has in the last two years been an increase in the totals, with the exception of deaths. The number of births reported is greater than for any previous year. This is probably due largely to more complete returns in 1893 than in any previous year.

BIRTHS.

There were returned for the year 1893, 8,348 births, or 620 more than was reported the previous year.

The birth-rate for the state was 22.17 to each 1,000 of the population for the entire state.

TABLE No. 4.

Births in Cities for 1893, *with rate per* 1,000.

CITIES.	Population of 1890.	Births.	Birth-rate per 1,000.
Portsmouth	9,827	175	17.81
Dover	12,790	301	23.53
Concord	17,004	448	26.35
Manchester	44,126	1,150	26.06
Nashua	19,311	698	36.15
Keene	7,446	151	20.28
Rochester	7,396	172	23.26
Laconia	6,143	214	34.83
Somersworth	6,207	208	33.51

Table No. 4 gives the population, number of births, and birth-rate per 1,000 of the population for the several cities of the state. It will be seen by this table that the highest birth-rate is to be credited to Nashua—the rate of 36.15 to each 1,000 of the population. The lowest birth-rate was in Portsmouth, with only 17.81 to each 1,000 of the population.

TABLE No. 5.

Percentage of American and Foreign Births, by Counties, 1893.

COUNTIES.	PARENTS.			Births with parentage not stated.
	American born.	Foreign born.	One foreign born.	
Rockingham	62.79	20.00	13.96	29
Strafford	40.18	44.95	13.01	18
Belknap	50.42	29.46	12.46	27
Carroll	68.91	16.03	9.61	17
Merrimack	49.57	34.05	13.66	29
Hillsborough	39.21	42.71	14.22	95
Cheshire	53.53	26.62	15.34	30
Sullivan	62.50	18.27	14.42	15
Grafton	70.28	11.11	13.75	35
Coös	29.76	47.02	18.89	40
Total for state	48.56	33.27	11.76	335

Table No. 5 represents the percentage of parents by nativity. This table shows that less than one half (48.56) of the children born in the state during the year were of American parentage. 33.27 per cent. of the children born in the state in 1893 were of foreign parentage.

This table, in connection with the census statistics of nativity of the population of the state, offers a very interesting and instructive study.

MARRIAGES.

The number of marriages returned for the year 1893 was 4,090, the largest number ever reported in a single year, and 16 larger than was returned the previous year.

TABLE No. 6.

Marriage-rates for 1882 *to* 1893, *inclusive.*

YEARS.	Marriages.	Persons married to 1,000 living.	Number living to one married.
1882	3,433	19.44	103
1883	3,495	19.68	102
1884	3,292	18.34	109
1885	3,180	17.56	114
1886	3,324	18.22	109
1887	3,495	19.00	105
1888	3,379	18.22	109
1889	3,621	19.36	103
1890	3,621	19.22	103
1891	3,904	20.72	97
1892	4,074	21.30	93
1893	4,090	21.22	94
Average	3,575	18.35	103

Table No. 6 shows the total number of marriages from 1882 to 1893, inclusive; also the percentage of persons married to each 1,000 of the living population, together with the number living to each marriage.

The average number of marriages for the past eleven years is 3,575 annually.

TABLE No. 7.

Marriages by Counties from 1882 *to* 1893, *inclusive.*

COUNTIES.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.	1893.
Rockingham....	419	399	419	447	440	457	420	484	458	507	502	546
Strafford.....	428	425	415	388	418	420	416	377	457	366	466	467
Belknap.....	166	198	147	150	183	213	183	186	178	200	208	194
Carroll.....	159	175	171	182	177	149	163	176	155	200	190	205
Merrimack.....	364	432	344	361	345	421	405	423	473	430	463	478
Hillsborough...	1,025	949	886	815	876	915	879	1,013	939	1,043	1,252	1,138
Cheshire.....	232	262	238	233	240	255	221	250	237	289	269	255
Sullivan.....	149	167	138	109	140	123	146	154	172	175	152	151
Grafton.....	319	339	332	327	318	328	322	343	314	338	332	356
Coös.....	172	149	202	168	187	214	224	215	238	256	240	300
Total	3,433	3,495	3,292	3,180	3,324	3,495	3,379	3,621	3,621	3,904	4,074	4,090

TABLE No. 8.

Marriage-rates for 1882 *to* 1893, *inclusive, by Counties.*

COUNTIES.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.	1893.
Rockingham	8.51	8.09	8.49	9.04	8.89	9.22	8.45	9.72	9.22	10.21	10.08	10.96
Strafford	11.84	11.66	11.30	10.48	11.21	11.17	10.98	9.88	11.88	12.12	11.94	11.88
Belknap	9.01	10.61	7.78	7.84	9.45	10.87	9.23	9.27	8.75	9.84	10.00	9.22
Carroll	8.73	9.62	9.40	10.01	9.74	8.21	8.98	9.71	8.55	11.03	10.43	11.33
Merrimack	7.75	9.14	7.23	7.54	7.16	8.68	8.30	8.61	9.56	8.69	9.24	9.46
Hillsborough	12.95	11.73	10.72	9.65	10.17	10.41	9.80	11.08	10.07	11.18	12.93	10.15
Cheshire	8.01	9.02	8.01	7.97	8.18	8.66	7.48	8.43	8.01	9.77	9.04	8.55
Sullivan	8.28	9.27	7.74	6.14	7.93	7.00	8.35	8.86	9.93	10.11	8.44	8.85
Grafton	8.28	8.83	8.68	8.59	8.38	8.68	8.55	9.15	8.43	9.10	8.62	9.69
Coös	8.82	7.46	9.89	8.04	8.76	9.82	10.07	9.47	10.25	11.03	9.94	12.19
Average	9.72	9.84	9.17	8.78	9.11	9.50	9.11	9.68	9.61	10.31	10.58	10.23

TABLE No. 9.

*Marriages and Marriage-rates by Months and Quarters, from 1883 to 1893, inclusive**

MONTHS.	MARRIAGES REGISTERED.												PERCENTAGE OF MARRIAGES.											
	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.	1893.	Quarters.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.	1893.	Quarters.
January ..	359	270	254	252	303	284	283	309	305	285	319		10.38	8.25	8.02	7.61	8.74	8.45	7.87	8.53	7.84	7.06	7.84	
February .	236	264	201	191	237	242	212	215	248	303	266	8,102	6.83	8.06	6.35	5.77	6.84	7.20	5.89	5.92	6.37	7.51	6.54	20.78
March.....	215	184	162	224	178	185	240	203	217	237	219		6.22	5.62	5.12	6.77	5.13	5.50	6.67	5.60	5.58	5.87	5.38	
April	230	231	274	212	250	259	255	295	293	313	400		6.65	7.05	8.65	6.40	7.21	7.71	7.09	8.14	7.53	7.76	9.83	
May.....	282	253	244	307	276	247	306	260	275	300	294	9,722	8.16	7.73	7.71	9.28	7.96	7.35	8.51	7.18	7.07	7.44	7.22	24.77
June	239	268	269	325	316	341	342	338	346	409	473		6.91	8.19	8.50	9.82	9.11	10.14	9.51	9.33	8.89	10.14	11.62	
July.....	233	242	200	223	259	205	270	230	262	268	316		6.74	7.39	6.32	6.74	7.47	6.10	7.51	6.35	6.74	6.64	7.76	
August	271	221	222	239	247	239	282	262	322	278	312	9,301	7.84	6.75	7.01	7.22	7.12	7.11	7.84	7.23	8.28	6.89	7.66	23.70
September	270	324	311	315	298	315	321	380	391	396	377		7.81	9.90	9.82	9.52	8.59	9.37	8.92	10.49	10.06	9.81	9.26	
October ...	350	332	320	343	376	377	351	360	407	441	374		10.12	10.14	10.11	10.36	10.84	11.22	9.76	9.94	10.49	10.93	9.19	
November	423	386	374	388	427	381	409	443	467	445	398	12,112	12.24	11.79	11.81	11.72	12.31	11.34	11.37	12.26	12.01	11.03	9.78	30.87
December	349	299	335	291	301	286	326	316	355	360	322		10.10	9.13	10.58	8.79	8.68	8.51	9.06	8.72	9.13	8.92	7.91	
Total..	3,457	3,274	3,166	3,310	3,468	3,361	3,597	3,611	3,888	4,035	4,070	39,237	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

* Not including those with date not given.

TABLE No. 10.

Marriages for eleven years, 1883 to 1893, inclusive, by Ages.

SEX.	Under 20.	20 to 25.	25 to 30.	30 to 35.	35 to 40.	40 to 45.	45 to 50.	50 to 55.	55 to 60.	60 to 70.	70 to 80.	Over 80.	Not stated.
Males.....	1,876	14,705	10,408	4,648	2,432	1,426	981	750	535	755	265	19	674
Females.....	10,625	14,810	6,419	2,720	1,572	935	636	422	238	261	41	1	794

TABLE 11.

Marriages according to Nativity.—Percentages 1882 to 1893, inclusive.

YEARS.	Both American.	Both foreign.	Groom American.	Bride American.	Not stated.
1882.....	65.74	12.09	5.13	4.14	12.90
1883.....	66.15	12.62	5.38	4.18	11.67
1884.....	69.44	12.91	5.32	3.92	8.41
1885.....	69.75	11.57	4.97	4.84	8.87
1886.....	67.87	13.39	6.50	5.08	7.16
1887.....	65.72	15.79	6.07	5.49	6.93
1888.....	64.22	17.16	7.10	6.31	5.21
1889.....	64.32	17.04	7.40	6.55	4.69
1890.....	62.19	18.58	7.53	7.15	4.53
1891.....	62.45	18.49	7.38	6.74	4.94
1892.....	59.82	21.01	7.81	6.82	4.54
1893.....	60.88	18.80	10.68	8.09	1.54

TABLE No. 12.

Proportion of American to Foreign Born Persons Married, for 1882 *to* 1893, *inclusive.*

YEARS.	American-born.	Foreign-born.
1882	80.80	19.20
1883	80.30	19.70
1884	80.86	19.14
1885	81.92	18.08
1886	79.34	20.66
1887	76.82	23.18
1888	74.82	25.18
1889	74.80	25.20
1890	65.14	34.86
1891	73.12	26.87
1892	70.33	29.67
1893	71.37	28.63

Table No. 12 represents the proportion of American to foreign-born persons married from 1882 to 1893, inclusive.

This table is exceedingly instructive from the fact that it shows a progressive diminution in the number of children born of American parents, with an increase of children of foreign parentage.

By referring to table No. 5 it will be seen that, although 71.37 per cent. of the marriages were among American-born, only 48.56 per cent. of the children born for the year were of American parentage. On the other hand, 28.63 per cent. of the marriages were among foreign-born, with a birth record of 33.27 per cent. of children of foreign parentage.

In Strafford, Hillsborough, and Coös counties, the number of children of foreign parents was greater for the year 1893 than the number of American-born.

TABLE No. 13.

Percentages of American and Foreign Born Persons Married, by Counties, from 1882 to 1893, inclusive.

YEARS.		State.	Rockingham.	Strafford.	Belknap.	Carroll.	Merrimack.	Hillsborough.	Cheshire.	Sullivan.	Grafton.	Coös.
1882	American	80.80	90.89	80.98	75.90	97.43	84.25	66.08	88.64	90.08	93.38	81.17
	Foreign	19.20	9.11	19.02	24.10	2.57	15.75	33.92	11.36	9.92	6.62	18.83
1883	American	80.30	89.63	82.05	82.78	94.22	84.17	62.84	89.57	96.92	89.63	75.76
	Foreign	19.70	10.37	17.95	17.22	5.78	15.83	37.16	10.43	3.08	10.37	24.24
1884	American	80.86	86.68	76.32	88.11	97.71	85.83	65.30	90.32	93.65	92.18	76.44
	Foreign	19.14	13.32	23.68	11.89	2.29	14.17	34.70	9.68	6.35	7.82	23.56
1885	American	81.92	86.95	81.25	83.58	97.26	87.09	67.52	90.05	91.33	89.63	76.60
	Foreign	18.08	13.05	18.75	16.42	2.74	12.91	32.48	9.95	8.67	10.37	23.40
1886	American	79.34	87.01	79.82	75.14	96.18	83.74	62.90	91.27	89.00	90.53	71.50
	Foreign	20.66	12.99	20.18	24.86	3.82	16.26	37.10	8.73	11.00	9.47	28.50
1887	American	76.82	87.15	75.70	78.71	93.88	80.29	60.59	82.98	93.97	88.50	66.42
	Foreign	23.18	12.85	24.30	21.29	6.12	19.71	39.41	17.02	6.03	11.50	33.58
1888	American	74.82	84.03	77.10	78.53	93.91	76.93	54.94	84.47	88.73	88.96	74.07
	Foreign	25.18	15.97	22.90	21.46	6.09	23.07	45.06	15.53	11.27	11.04	25.93

TABLE No. 13.—*Continued.*

YEARS.		State.	Rockingham.	Strafford.	Belknap.	Carroll.	Merrimack.	Hillsborough.	Cheshire.	Sullivan.	Grafton.	Coös.
1889	American	74.80	84.85	72.41	82.56	93.39	79.90	56.96	85.99	90.00	88.84	65.17
	Foreign	25.20	15.15	27.59	17.44	6.61	20.10	43.04	14.01	10.00	11.16	34.83
1890	American	65.14	76.39	63.57	74.25	87.75	68.01	47.48	77.44	83.63	80.95	45.30
	Foreign	34.86	23.61	36.43	25.75	12.25	31.99	52.52	22.56	16.37	19.05	54.70
1891	American	73.12	82.82	76.10	76.98	86.38	73.24	57.28	82.35	83.53	88.03	65.06
	Foreign	26.87	17.17	23.89	23.02	13.61	26.75	42.72	17.65	16.47	11.97	34.94
1892	American	70.33	84.09	72.63	73.97	92.39	76.78	51.44	81.98	85.11	87.50	59.57
	Foreign	29.67	15.91	27.37	26.03	7.61	23.22	48.56	18.02	14.89	12.50	40.43
1893	American	71.37	80.11	75.81	80.36	92.12	73.68	53.36	78.04	83.34	85.17	65.76
	Foreign	28.63	19.89	24.19	19.64	7.88	26.32	46.64	21.96	16.66	14.83	34.24

Table No. 13 represents the percentage of American and foreign born persons married by counties for each year from 1882 to 1893 inclusive. This table gives an opportunity for a more detailed study of the question of marriages by nativity than is furnished in Table 12.

DIVORCES.

TABLE No. 14.

Divorces Decreed from 1870 *to* 1893, *inclusive, by Counties.*

COUNTIES.	1870	1871	1872	1873	1874	1875	1876	1877	1878	1879	1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893
Rockingham	19	20	29	34	41	23	37	18	30	30	44	30	23	21	28	25	40	41	26	43	42	47	33	42
Strafford	12	6	24	27	25	17	20	29	29	34	58	42	36	53	32	28	46	24	41	36	38	30	30	39
Belknap	....	7	7	13	12	10	18	16	16	16	22	17	14	15	19	20	24	25	26	27	25	37	27	25
Carroll	4	1	1	9	9	4	10	13	19	13	11	19	9	7	14	20	12	12	22	20	20	17	18	20
Merrimack	15	27	32	13	51	37	40	23	22	36	41	25	49	49	48	35	46	48	49	42	53	52	55	53
Hillsborough	64	37	58	51	77	75	65	73	61	69	83	87	90	74	93	86	110	78	82	87	95	115	89	108
Cheshire	12	19	19	16	15	22	21	17	18	22	31	21	34	25	30	25	32	26	29	31	32	32	32	28
Sullivan	6	6	10	16	17	13	26	9	10	8	9	22	17	12	11	20	25	20	26	18	22	13	8	15
Grafton	13	21	15	29	22	20	20	29	17	27	25	37	27	14	28	22	30	35	40	39	33	49	38	39
Coös	4	5	2	4	12	11	9	10	11	10	15	7	15	3	12	10	17	16	18	25	22	20	17	29
Total	149	149	197	212	281	232	266	237	233	265	339	307	314	273	315	291	382	325	359	368	382	412	347	398

TABLE No. 15.

Ratio of Divorces to Marriages from 1882 *to* 1893, *inclusive.*

YEARS.	Number of marriages.	Marriage-rate per 1,000.	Number of divorces.	Ratio of divorces to marriages.
1882	3,433	19.44	314	1 to 10.93
1883	3,495	19.68	273	1 to 12.80
1884	3,292	18.34	315	1 to 10.45
1885	3,180	17.56	291	1 to 10.92
1886	3,324	18.22	382	1 to 8.70
1887	3,495	19.00	325	1 to 10.75
1888	3,379	18.22	386	1 to 8.75
1889	3,621	19.22	368	1 to 9.83
1890	3,621	19.22	382	1 to 9.48
1891	3,904	19.22	412	1 to 10.55
1892	4,074	21.30	347	1 to 11.74
1893	4,090	21.22	398	1 to 10.27

Table No. 15 shows the total number of divorces decreed from 1882 to 1893, inclusive, by counties, also the ratio of divorces to marriages for the same period. In the year 1893 one divorce was decreed to each 10.27 marriages, this being a slight decrease over the ratio of the two years previous. As a whole there has not been any very marked variation of ratios for the past eleven years.

Additional tables relating to the alleged causes of divorce for the year 1893, and also for the period of 11 years, may be found on pages 42 and 43 of this report.

TABLE No. 16.

Ratio of Divorces to Marriages, by Counties, for 1893.

COUNTIES.	Number of marriages.	Number of divorces.	Ratio of divorces to marriages.
Rockingham	546	42	1 to 13.00
Strafford	467	39	1 to 11.97
Belknap	194	25	1 to 7.76
Carroll	205	20	1 to 10.20
Merrimack	478	53	1 to 9.02
Hillsborough	1,138	108	1 to 10.53
Cheshire	255	28	1 to 9.10
Sullivan	151	15	1 to 10.06
Grafton	356	39	1 to 9.12
Coös	300	29	1 to 10.34
Total	4,090	398	1 to 10.27

Table 16 exhibits the number of marriages, number of divorces, and the ratio of divorces to marriages by counties for the year 1893.

The highest ratio of divorces to marriages was in Belknap county, with a rate of one divorce to every 7.76 marriages; while the lowest ratio was in Rockingham county, with a record of one divorce to every 13 marriages.

DEATHS.

The number of deaths returned for the year 1893 was 7,663, 325 less than was returned the previous year.

The death-rate per 1,000 of the population for the year is 20.35.

TABLE No. 17.

Deaths and Death-rates from 1884 *to* 1893, *inclusive.*

YEARS.	Deaths registered.	Deaths to 1,000 of population.*	Population.*
1884	1,694	16.26	358,845
1885	6,201	17.13	361,806
1886	6,426	17.61	364,767
1887	6,479	17.61	367,728
1888	6,854	18.48	370,689
1889	6,696	17.91	373,650
1890	7,368	19.56	376,530
1891	7,310	19.41	379,491
1892	7,988	20.88	382,452
1893	7,663	20.35	385,413
Average	6,918	18.52	.....

* Population estimated for all but census years.

Table 17 represents the total number of deaths registered each year from 1884 to 1893, inclusive, with the percentage for each year to each 1,000 of the population. This table is liable to give an erroneous impression if it is not borne in mind that the progressive increase in the percentage column is due rather to a more accurate and complete registration from year to year than to any other cause. In the earlier years represented in the table the registration of deaths was not so complete as it is now.

TABLE No. 18.

*Deaths and Death-rates, by Counties, from 1884 to 1893, inclusive.**

COUNTIES.	1884.		1885.		1886.		1887.		1888.		1889.		1890.		1891.		1892.		1893.	
	Deaths.	Death-rates.	Deaths.	Death-rates.	Deaths.	Death-rates.	Deaths.	Death-rates.	Deaths.	Death-rates.	Deaths.	Death-rates.	Deaths.	Death-rates.	Deaths.	Death-rates.	Deaths.	Death-rates.	Deaths.	Death-rates.
Rockingham ...	873	17.69	911	18.43	963	19.46	876	17.67	896	18.05	875	17.61	1,065	21.45	991	19.95	1,026	20.66	1,033	20.80
Strafford	627	17.07	619	16.73	609	16.33	673	17.91	688	18.17	691	18.11	801	20.83	809	21.04	864	22.47	742	19.30
Belknap.....	285	15.09	289	15.12	362	18.71	369	18.84	392	19.78	389	19.40	374	18.40	392	19.29	440	21.65	369	18.16
Carroll	333	18.31	269	14.80	303	16.68	294	16.20	328	18.08	298	16.44	303	16.71	341	18.81	342	18.87	305	16.83
Merrimack.....	736	15.48	796	16.63	833	17.29	835	17.22	920	18.86	891	18.15	983	19.88	951	19.23	1,064	21.52	1,063	21.50
Hillsborough ..	1,655	20.02	1,701	20.15	1,681	19.51	1,697	19.38	1,846	20.59	1,740	19.04	1,973	21.14	1,957	20.98	2,092	22.43	2,103	22.55
Cheshire.....	497	17.06	494	16.90	475	16.19	482	16.39	488	16.52	525	17.72	557	18.49	482	16.29	608	20.55	595	20.11
Sullivan	273	15.32	284	16.02	328	18.59	283	16.12	327	18.72	314	18.06	332	19.81	280	16.18	382	21.49	362	20.92
Grafton.....	652	17.06	611	16.05	616	16.24	602	15.93	655	17.35	625	16.67	651	17.49	648	17.41	749	20.01	696	18.70
Coös	263	12.88	227	10.87	256	12.00	368	16.89	314	14.11	348	15.32	329	14.17	459	19.77	421	18.13	395	17.02
Total.....	6,194	17.26	6,201	17.13	6,426	17.61	6,479	17.61	6,854	18.48	6,696	17.91	7,368	19.56	7,310	19.41	7,988	21.21	7,663	20.35

* Population estimated for all but census years.

Table 18 shows the number of deaths and death-rate per 1,000 of the population from 1884 to 1893, inclusive, by counties.

The highest death-rate in any county for the year 1893 was in Hillsborough county, 22.55, followed by Merrimack, 21.50; Sullivan, 20.92; Rockingham, 20.80; Cheshire, 20.11; Strafford, 19.30; Grafton, 18.70; Belknap, 18.16; Coös, 17.02; Carroll, 16.83.

TABLE No. 19.

*Pecentages of Deaths, by Quarters, from 1884 to 1893, inclusive.**

YEARS.	PERCENTAGES OF DEATHS FOR QUARTERS ENDING WITH			
	March.	June.	September.	December.
1884	23.23	23.40	26.63	26.74
1885	27.27	26.66	24.32	21.75
1886	23.75	23.27	28.90	24.08
1887	24.56	24.02	27.77	23.65
1888	25.94	23.72	26.82	23.52
1889	23.70	24.16	27.38	24.76
1890	28.82	21.63	26.71	22.84
1891	22.36	24.15	26.89	26.58
1892	34.97	21.41	23.99	19.63
1893	23.53	24.26	27.65	24.56

*Not including deaths with month not stated, premature and still births.

Table 19 shows the death percentages by quarters from 1884 to 1893 inclusive. With the cessation of the epidemic of influenza which prevailed in 1892, the percentages by quarters for 1893 assumed their relative normal places. The rate for the first quarter in 1893 is 23.53 as against 34.97 for the same period of the previous year (when the epidemic of influenza prevailed). The second quarter shows 24.26; the third quarter, 27.65; and the fourth quarter, 24.56.

TABLE No. 20.

Mortality of Males and Females compared, 1884 to 1893, inclusive.

YEARS.	Male decedents.	Female decedents.	Male decedents to 100 female decedents.	Death-rate of males to 1,000 male population.	Death-rate of females to 1,000 of female population.
1884	3,034	3,122	97.18	17.79	17.69
1885	2,948	3,194	92.29	17.28	18.09
1886	3,155	3,212	98.20	18.50	18.20
1887	3,174	3,267	97.15	18.61	18.51
1888	3,419	3,382	101.09	20.04	19.16
1889	3,253	3,389	95.98	19.07	19.20
1890	3,692	3,624	101.87	21.65	20.53
1891	3,557	3,453	103.01	19.60	17.65
1892	3,981	3,990	99.77	21.33	21.00
1893	3,827	3,812	99.61	20.51	20.42
Average	3,404	3,444	98.61	19.44	19.04

Table No. 20 exhibits the mortality of males and females compared for the years 1884 to 1893, inclusive. It will be seen by this table that the mortality among the females was slightly greater than among the males, the percentage for the period given of the male decedence to each 100 females being 98.61; and for the year 1893, 99.61.

The death-rate of the males to each 1,000 of the male population for the 10 years given in the table was 19.44.

The death rate of females to each 1,000 of the female population for the same period was 19.04.

TABLE No. 21.

*Deaths at Age Periods, by Percentages, from 1883 to 1893, inclusive.**

YEARS.	Under 1.	1 to 5.	5 to 10.	10 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	Over 60.
1883.....	14.33	7.58	2.56	5.55	8.58	6.73	6.22	7.64	37.93
1884.....	16.22	7.36	2.61	5.30	7.93	6.26	6.33	7.75	38.38
1885.....	15.98	7.14	2.11	4.42	7.50	6.71	6.71	7.76	40.09
1886.....	16.89	7.70	2.86	4.82	7.73	6.55	6.12	7.47	38.86
1887.....	17.64	7.26	2.05	4.89	6.96	6.25	6.56	7.72	39.70
1888.....	19.23	7.63	2.04	4.93	7.07	6.00	5.53	7.57	38.72
1889.....	19.44	7.71	2.66	4.64	6.56	6.15	5.93	7.63	38.40
1890.....	16.23	6.67	1.99	4.28	7.04	7.42	6.62	9.17	40.49
1891.....	18.30	7.08	2.55	4.40	6.95	6.01	6.29	8.15	40.25
1892.....	16.17	6.64	2.18	4.39	6.70	6.63	6.60	8.76	41.77
1893.....	17.83	7.13	1.93	4.32	7.20	6.62	6.94	8.10	39.86

* Not including those with age not stated, premature and still births.

Table No. 21 is interesting in showing how uniformly the mortality by age periods occurs, even when distributed over a series of years.

TABLE No. 22.

*Deaths at Different Periods, compared with the number Living at the Same Period, 1893.**

	1893.	Persons living at same ages, census of 1880.	Death-rate per 1,000.
Under 1 year	1,296	6,141	211.04
Under 5 years	1,812	30,573	59.26
20 to 30 years	521	63,252	8.24
All others	5,025	253,166	19.85
All ages	7,358	376,530†	19.54

* Excluding still births and premature births. †Census of 1890.

Table No. 22 shows the number of deaths at different age periods compared with the number of living at the same period, for 1893. It shows the death-rate per one thousand of the population under one year of age to the living persons of the same age period to be 211.04 as against 199.47 for the previous year, showing a slight increase. Under 5 years of age, 59.26 as against 56.47 for the previous year; between 20 and 30, 8.24 as against 7.99 for 1892. All others 19.85 in 1893 as against 21.59 in 1892. For all ages the rate was 19.54 in 1893 as against 20.44 in the preceding year.

TABLE No. 23.

*Deaths by Ages and Sex, from 1884 to 1893, inclusive.**

YEARS.	Under 1.	1 to 5.	5 to 10.	10 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 to 100.	Over 100.	Unknown.
1884....Males	460	243	72	136	224	168	180	245	322	502	292	30	1	60
Females	353	212	90	192	266	220	211	235	336	444	379	70	.....	51
Not stated	3	1	.....	.....	1	.....	1	.....	1	.....	.....	.....	.....	4
Total	816	456	162	328	491	388	392	480	659	946	671	100	1	115
1885....Males	416	225	62	109	190	181	190	252	394	478	284	32	1	43
Females	371	217	68	164	275	235	226	225	355	463	398	74	2	50
Not stated	18	1	1	1	.....	.....	.....	4	2	3	.....	.....	.....	5
Total	805	443	131	274	465	416	416	481	751	944	682	106	3	98
1886....Males	487	273	94	132	205	188	198	228	368	499	317	42	2	33
Females	385	221	90	178	292	233	195	252	339	447	397	83	3	28
Not stated	19	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3
Total	891	495	184	310	497	421	393	480	707	946	714	125	5	64
1887....Males	490	231	71	142	196	184	186	254	377	512	336	45	1	34
Females	416	239	61	175	255	221	239	246	358	494	350	93	6	28
Not stated	8	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Total	914	470	133	317	451	405	425	500	735	1,006	686	138	7	63
1888....Males	588	280	75	144	213	177	180	257	392	507	377	47	1	53
Females	459	243	65	194	271	241	199	262	375	511	360	79	5	21
Not stated	13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Total	1,060	523	140	338	484	418	379	519	767	1,018	737	126	6	87

1889....	Males	536	269	90	131	187	186	175	241	381	492	342	43	.....	29
	Females	470	245	88	179	251	226	222	270	398	471	366	75	3	29
	Not stated	8	2	.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	1
	Total	1,014	516	178	311	439	412	397	511	779	963	708	118	3	59
1890....	Males	609	250	73	143	229	242	220	308	422	576	368	52	.....	59
	Females	524	216	66	156	263	277	242	332	399	513	406	86	5	44
	Not stated	13	2	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	10
	Total	1,146	468	139	299	492	519	462	640	821	1,090	774	138	5	113
1891....	Males	703	256	86	134	248	206	210	279	438	530	346	52	.....	69
	Females	551	231	90	170	232	208	225	284	395	507	412	97	3	48
	Not stated	10	2	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1
	Total	1,264	489	176	304	480	415	435	563	833	1,037	758	149	3	118
1892....	Males	681	251	79	155	219	226	228	312	502	631	397	40	2	88
	Females	539	251	86	177	287	275	271	349	473	554	467	89	1	61
	Not stated	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	.....
	Total	1,225	502	165	332	506	501	499	661	975	1,185	864	129	6	149
1893....	Males	716	251	69	146	238	227	225	292	478	568	342	35	5	72
	Females	574	265	71	167	283	252	277	294	389	537	431	98	3	43
	Not stated	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4
	Total	1,296	516	140	313	521	479	502	586	867	1,105	773	133	8	119

* Excluding still births and premature births.

Table No. 23 shows the number of deaths by sex at different age periods, from 1884 to 1893 inclusive.

TABLE No. 24.

*Percentages of Deaths by Ages and Sex to Total Mortality, from 1884 to 1893 inclusive.**

YEARS.		Under 1.	1 to 5.	5 to 10.	10 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 to 100.	Over 100.
1884..	Males	16.00	8.45	2.51	4.73	7.79	5.84	6.26	8.52	11.20	17.46	10.16	1.04	.04
	Females	11.74	7.05	2.99	6.38	8.84	7.31	7.02	7.81	11.17	14.76	12.60	2.33	.....
	Total	13.82	7.73	2.75	5.57	8.33	6.60	6.65	8.16	11.18	16.08	11.41	1.70	.02
1885..	Males	14.78	8.00	2.20	3.87	6.75	6.43	6.75	8.96	14.00	16.99	10.09	1.14	.04
	Females	12.07	7.06	2.21	5.34	8.95	7.65	7.35	7.32	11.55	15.07	12.95	2.41	.07
	Total	13.37	7.51	2.21	4.64	7.95	7.07	7.07	8.10	12.72	15.98	11.58	1.80	.05
1886..	Males	16.06	9.00	3.10	4.35	6.75	6.20	6.53	7.52	12.13	16.45	10.45	1.39	.07
	Females	12.36	7.10	2.89	5.71	9.37	7.48	6.26	8.09	10.88	14.35	12.74	2.67	.10
	Total	14.18	8.04	2.99	5.04	8.08	6.85	6.39	7.81	11.50	15.39	11.62	2.03	.08
1887..	Males	16.20	7.64	2.35	4.69	6.48	6.08	6.15	8.40	12.46	16.92	11.11	1.49	.03
	Females	13.19	7.58	1.94	5.55	8.09	7.01	7.58	7.80	11.35	15.67	11.10	2.95	.19
	Total	14.67	7.61	2.14	5.13	7.30	6.56	6.88	8.09	11.90	16.28	11.10	2.23	.11
1888..	Males	18.16	8.65	2.31	4.45	6.58	5.47	5.56	7.94	12.10	15.66	11.64	1.45	.03
	Females	14.06	7.45	1.99	5.94	8.30	7.38	6.10	8.03	11.49	15.66	11.03	2.42	.15
	Total	16.10	8.04	2.15	5.20	7.44	6.43	5.83	7.98	11.80	15.66	11.34	1.94	.09
1889..	Males	17.44	8.75	2.93	4.26	6.09	6.05	5.70	7.84	12.40	16.01	11.13	1.40	.....
	Females	14.40	7.51	2.70	5.48	7.69	6.92	6.80	8.27	12.20	14.43	11.21	2.30	.09
	Total	15.88	8.11	2.81	4.89	6.91	6.50	6.27	8.06	12.29	15.20	11.17	1.86	.05

1890..	Males	17.44	7.15	2.09	4.09	6.55	6.93	6.30	8.82	12.08	16.49	10.54	1.49	.....
	Females	15.03	6.19	1.89	4.47	7.54	7.94	6.94	9.52	11.45	14.72	11.65	2.46	.14
	Total	16.23	6.67	1.99	4.28	7.04	7.43	6.62	9.17	11.76	15.60	11.09	1.97	.07
1891..	Males	20.15	7.34	2.47	3.84	7.11	5.91	6.02	8.00	12.56	15.15	9.92	1.49	.....
	Females	16.18	6.78	2.61	4.99	6.81	6.11	6.61	8.34	11.60	14.88	12.09	2.85	.08
	Total	18.19	7.06	2.55	4.41	6.96	6.01	6.31	8.16	12.08	15.04	10.99	2.16	.04
1892..	Males	18.29	6.74	2.12	4.16	5.88	6.07	6.12	8.38	13.48	16.94	10.66	1.07	.05
	Females	14.11	6.56	2.25	4.63	7.51	7.20	7.09	9.13	12.38	14.50	12.22	2.33	.02
	Total	16.17	6.64	2.18	4.39	6.70	6.63	6.60	8.76	12.91	15.69	11.44	1.70	.03
1893..	Males	19.93	6.98	1.92	4.07	6.62	6.31	6.26	8.13	13.30	15.81	9.52	.97	.14
	Females	15.76	7.27	1.95	4.58	7.68	6.92	7.44	8.07	10.68	14.75	11.83	2.69	.08
	Total	17.83	7.13	1.93	4.32	7.20	6.62	6.94	8.10	11.98	15.14	10.69	1.84	.11

* Excluding those with age and sex not stated, and premature and still births.

Table No. 24 shows the percentages of deaths by age periods and by sex to the total mortality from 1884 to 1893 inclusive.

TABLE No. 25.

Deaths of Children under Five Years of Age, by Seasons, 1893.*

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Months	109	104	119	131	126	98	229	301	247	129	95	115
Quarters		332			355			777			339	
Percentages		18.41			19.69			43.10			18.80	
Half-years			687						1,116			
Percentages			38.10						61.90			
Total deaths						1,803						

* Not including deaths with month not stated, premature and still births.

Tables Nos. 24 and 25 should be studied in connection with each other, and are instructive as they give the number of deaths and the percentage to the total mortality by age periods for the nine years embraced in the tables. These tables show vividly the fearful mortality of early childhood. This is especially emphatic in the table of percentages.

Table No. 25 represents the mortality of children under 5 years of age, by seasons, for the year 1892. The highest mortality was in the quarter including July, August, and September, and was 43.10 per cent. as against 37.66 for the previous year. The next highest rate was in the second quarter of the year, at 19.69, followed by the fourth quarter, at 18.80, and the first quarter at 18.41.

The total mortality by half years was as follows:

First half of the year, 687.
Last half of the year, 1,116.

TABLE No. 26.

Total Deaths by Seasons, 1893.*

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Months	584	571	571	638	646	496	684	718	627	551	515	736
Quarters		1,726			1,780			2,029			1,802	
Percentages		23.53			24.26			27.65			24.56	
Half-years			3,506						3,831			
Percentages			47.79						52.21			
Total deaths						7,337						

* Not including deaths with month not stated, premature and still births.

Table No. 26 gives the total number of deaths of all ages by seasons for the year 1893. There was a total of 7,337 deaths as against 7,682 for the previous year.

By quarters the death-rate was the heaviest in the third quarter of the year, which rate is augmented by a large death-rate from intestinal diseases among children. For the other quarters of the year the mortality variation is exceedingly small.

TABLE No. 27.

Nativity of persons Deceased for 1893, *by Counties.*

COUNTIES.	Total deaths.*	NATIVE BORN.		FOREIGN-BORN.	
		Deaths.	Per centages.	Deaths.	Per centages.
Rockingham	1,033	816	89.08	100	10.92
Strafford	742	525	80.40	128	19.60
Belknap	369	280	88.61	36	11.39
Carroll	305	266	97.08	8	2.92
Merrimack	1,063	883	88.92	110	11.08
Hillsborough	2,103	1,461	77.26	430	22.74
Cheshire	595	487	88.38	64	11.62
Sullivan	362	310	91.18	30	8.82
Grafton	696	549	91.50	51	8.50
Coös	395	270	78.95	72	21.05
Total	7,663	5,847	85.03	1,029	14.97

* Including those whose nativity was not recorded. In the calculations of percentages, the rates are not given to the *total* reported deaths, but only to the total of those cases where the nativity was stated.

Table 27 gives the nativity of the decedents for the year 1893, together with the percentages of each by counties. The total number of foreign born decedents for the year was 1,029 as against 934 for the previous year.

TABLE No. 28.

Nativity of Persons Deceased from 1884 to 1893, inclusive.

YEARS.	Total deaths.*	NATIVE BORN.		FOREIGN BORN.	
		Deaths.	Percentages.	Deaths.	Percentages.
1884	6,194	4,868	89.01	601	10.99
1885	6,201	4,847	89.35	578	10.65
1886	6,426	4,989	88.52	647	11.48
1887	6,479	5,131	88.03	698	11.97
1888	6,854	5,449	87.53	776	12.47
1889	6,696	5,383	88.00	734	12.00
1890	7,368	5,672	86.45	889	13.55
1891	7,310	5,637	86.52	878	13.47
1892	7,988	6,155	86.82	934	13.17
1893	7,663	5,847	85.03	1,029	14.97

*Including those whose nativity was not recorded. In the calculation of percentages, the rates are not given to the *total* reported deaths, but only to the total of those cases where the nativity was stated.

Table No. 28 exhibits the number of native and foreign born decedents in each year from 1884 to 1893, inclusive, with percentages. Of a total of 7,663 deaths returned for the year 1893, 5,847 or 85.03 per cent. were native born, and 1,029 or 14.97 per cent. foreign born.

TABLE No. 29.

Deaths in 1893 of Persons Aged One Hundred Years, or more.

Date of death.	NAME.	AGE.			Place of death.	Birthplace.	Single, married, or widowed.
		Years.	Months.	Days.			
January 28	William Cooper	100			Stewartstown	England	Married.
January 30	Margaret Kane	100			Manchester	Ireland	Widowed.
February 13	Milton Scruton	101	2	17	Farmington	Strafford	Widowed.
April 12	Sarah Ellenwood	101	4	19	Windham		Widowed.
May 12	Amos Parker	101	7	4	Fitzwilliam	Fitzwilliam	Widowed.
September 19	Commedore Decatur	112			Dover	Albany, N. Y.	Single.
October 4	Charles Hall	100			Newport		Divorced.
December 7	Adah Barton	100	2	26	Grantham	Easton, Mass.	Widowed.

TABLE No. 30.

Causes of Death, by Classes, from 1884 *to* 1893, *inclusive.*

	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893
I.—Zymotic diseases.....	907	890	1,095	1,073	1,097	1,172	1,155	1,301	1,344	1,089
II.—Constitutional diseases	1,276	1,271	1,284	1,222	1,200	1,114	1,309	1,095	1,167	1,237
III.—Local diseases.....	2,594	2,637	2,610	2,731	2,994	2,852	3,146	3,149	3,531	3,370
IV.—Developmental diseases....	857	848	948	952	1,016	1,041	1,150	1,141	1,057	1,054
V.—Violent deaths.....	201	225	206	218	234	233	271	271	283	327

Table No. 30 gives the causes of death by classes from 1884 to 1893, inclusive. There was a large falling off in the number of deaths from zymotic diseases in 1893 from the returns of the three previous years, and 255 less than for 1892.

There was an increase in mortality in 1893 over the previous year in constitutional diseases. The variations in the other classes are less marked.

TABLE No. 31.

Percentage of Causes of Death, by Classes, from 1884 *to* 1893, *inclusive.**

YEARS.	CLASSES.				
	Zymotic.	Constitutional.	Local.	Developmental.	Violent deaths.
1884	15.9	22.4	45.7	12.3	3.5
1885	13.9	22.2	46.0	12.2	3.6
1886	18.2	21.4	43.4	13.4	3.4
1887	17.9	20.4	45.7	12.1	3.6
1888	17.4	19.1	47.6	12.0	3.7
1889	19.1	18.2	46.5	12.3	3.8
1890	17.0	19.3	46.5	13.1	4.0
1891	19.5	16.4	47.2	12.8	4.0
1892	18.9	16.4	49.7	10.8	4.0
1893	16.0	18.2	49.7	15.5	5.0

*Excluding deaths from unspecified causes, premature and still births.

Table No. 31 gives the percentages of causes of death by classes from 1884 to 1893, inclusive. This table gives practically the same information that is contained in table No. 30, but is presented in the form of percentages for the purpose of giving more vividly the variation of death rates by classes from year to year.

TABLE No. 32.

Causes of Death, by Classes and Counties, 1893.

COUNTIES.	Zymotic.		Constitutional.		Local.		Developmental.		Violent.		Unspecified.		Total.
	Number.	Percentages.	Number.	Percentages.	Number.	Percentages.	Number.	Percentages.	Number.	Percentages.	Number.	Percentages.	
Rockingham	122	11.82	187	18.10	473	45.79	153	14.81	35	3.39	63	6.09	1,033
Strafford	99	13.34	125	16.85	308	41.51	86	11.59	75	10.59	49	6.06	742
Belknap	68	18.43	78	21.14	151	40.92	51	13.82	9	2.44	12	3.25	369
Carroll	32	10.49	57	18.69	157	51.47	27	8.85	11	3.61	21	6.89	305
Merrimack	153	14.40	185	17.40	500	47.03	152	14.30	40	3.11	33	3.76	1,063
Hillsborough	305	14.50	305	14.50	795	37.80	325	15.46	79	3.76	294	13.98	2,103
Cheshire	73	12.27	88	14.78	294	49.43	76	12.77	29	4.87	35	5.88	595
Sullivan	48	13.26	60	16.58	185	51.11	40	11.05	9	2.48	20	5.52	362
Grafton	95	13.65	103	14.80	344	49.42	95	13.65	24	3.45	35	5.03	696
Coös	94	23.79	49	12.41	163	41.26	49	12.41	16	4.05	24	6.08	395
Total	1,089	14.21	1,237	16.14	3,370	43.98	1,054	13.75	327	4.27	586	7.65	7,663

Table No. 32 gives the causes of death, by classes and counties for 1893, with the percentages of each to the total number of deaths, and including deaths from unspecified causes, premature and still births, which accounts for the differences in the percentages in tables 31 and 32; the former gives the percentage of each class to the total number of specified causes, excluding premature and still births, while the latter gives the percentage of each class to the total number of all classes.

The highest percentage in the zymotic class is in Coös county, 23.79; the lowest in Carroll county, 10.49. In the constitutional class the highest rate is in Belknap county, 21.14; the lowest in Coös county, 12.41. Of local diseases the highest rate is in Carroll county, 51.47; the lowest in Hillsborough county, 37.80.

In developmental diseases the highest percentage is in Hillsborough county, 15.46; lowest in Carroll county, 8.85.

In the violent class the highest rate is in Strafford county, 10.59; the lowest in Belknap county, 2.44.

TABLE No. 33.

Mortality from Prominent Zymotic Diseases from 1884 to 1893, inclusive.

YEARS.	DISEASES.												
	Cholera infantum.	Croup.	Diarrhœa.	Diptheria.	Dysentery.	Erysipelas.	Fever, cerebro-spinal.	Fever, typhoid.*	Measles.	Pertussis.	Scarlatina.	Septicæmia.	Total.
1884.....	266	49	53	110	80	19	25	137	3	14	52	27	835
1885.....	219	74	59	78	40	25	20	136	45	25	53	38	812
1886.....	362	64	38	156	79	18	26	194	18	26	21	27	1,029
1887.....	336	84	38	177	53	20	34	134	39	21	26	30	992
1888.....	370	94	50	103	63	36	34	150	55	23	34	29	1,041
1889.....	353	88	68	210	67	27	25	161	16	47	18	29	1,109
1890.....	399	64	50	164	48	29	....	143	9	26	16	57	1,005
1891.....	486	56	46	160	51	43	....	170	19	27	13	38	1,109
1892.....	366	45	53	134	42	39	19	109	24	37	27	47	942
1893.....	423	36	50	63	63	29	3	121	32	23	52	43	938
Average	358	65	51	136	59	29	15	145	26	27	31	36	981

*Including fever, bilious, intermittent, malarial, and typho-malarial fevers.

Table No. 33 shows the mortality from the more prominent zymotic diseases from 1884 to 1893, inclusive. The total number of deaths coming under this class for the year 1893 is 938—practically the same as the preceding year. The largest number of deaths in this table are from cholera infantum, to wit: 423 for the entire state, which, with the exception of the year 1891. is the largest number of deaths ever returned from this cause.

Croup is responsible for 36 deaths, a figure lower than was ever before returned.

Diarrhœa is charged with 50 deaths, the average for the ten years included in the table being 51.

Diphtheria, with only 63 deaths for the year, is a record far below that heretofore recorded in any one year, and is less than one half the number reported for the previous year. The average death-rate for the ten years referred to is 136.

Dysentery is responsible for 63 deaths in 1893.

Erysipelas 29 deaths, which is the exact average for the entire period covered by the table.

Cerebro-spinal fever is chargeable with only three deaths for 1893 as against 19 the previous year.

There were 121 deaths returned from typhoid fever,— a slight increase over the preceding year, but considerably lower than the average for the ten years.

Measles caused 32 deaths as against 24 the preceding year, with an average of 26 for ten years.

Whooping cough caused 23 deaths in 1893, the average given in the table being 27.

Scarlet fever was responsible for 52 deaths in 1893 as against 27 the preceding year, and is a larger number than has been reported since 1885. The average annual mortality from this disease for the ten years included in the table is 31.

Septicæmia was the cause of 43 deaths in 1893 as against 47 the previous year.

TABLE 34.

Mortality from Principal Constitutional Diseases from 1884 to 1893, *inclusive.*

YEARS.	DISEASES.										
	Dropsy.	Anæmia.	Cancer.	Mortification.	Rheumatism.	Scrofula.	Tabes mesenterica.	Phthisis (pulmonary).	Hydrocephalus.	Tubercular meningitis.	Total.
1884	80	43	213	18	26	26	4	865	27	*	1,302
1885	90	32	212	24	28	22	2	857	25	*	1,292
1886	83	28	206	27	47	16	11	809	33	19	1,279
1887	79	17	218	29	47	16	7	766	23	16	1,218
1888	75	34	203	22	43	21	14	742	30	13	1,197
1889	62	40	213	21	43	22	13	651	21	24	1,110
1890	53	28	276	33	30	15	6	825	13	30	1,309
1891	41	41	213	2	24	11	19	695	22	15	1,083
1892	43	35	235	24	25	17	10	736	16	24	1,165
1893	49	26	283	30	27	14	21	737	23	27	1,237
Average	65	32	227	23	34	18	11	768	23	17	1,219

* Not classed separately.

Table No. 34 shows the mortality from the principal constitutional diseases for the ten years included in the table.

Phthisis (which no longer belongs under this classification) was responsible for 737 deaths in 1893—one more than was returned in 1892, as against an average of 768 for the period covered by the table.

There were 283 deaths chargeable to cancer in 1893 as against 235 for the previous year. It will be noticed that there is a remarkable uniformity in the number of deaths from cancer from year to year, although the return for 1893 is the highest yet recorded.

TABLE No. 35.

Mortality from Principal Local Diseases from 1884 *to* 1893, *inclusive.*

YEARS.	DISEASES.													
	Apoplexy.	Paralysis.	Convulsions.	Cephalitis.*	Brain disease.	Heart disease.	Bronchitis.	Pneumonia.	Enteritis.	Gastritis.	Peritonitis.	Liver disease.	Bright's disease, nephritis and other kidney diseases.	Total.
1884	192	248	99	120	134	507	78	436	69	44	61	63	140	2,191
1885	206	278	93	133	122	489	112	504	57	49	44	63	157	2,307
1886	220	249	71	141	127	510	81	466	53	66	48	71	143	2,246
1887	210	253	64	117	121	552	114	556	57	54	48	69	163	2,384
1888	243	273	88	143	112	575	142	628	39	51	63	72	154	2,634
1889	259	196	76	151	126	564	127	582	56	42	57	56	200	2,492
1890	263	251	65	186	140	568	194	703	63	60	51	56	201	2,801
1891	283	241	78	161	130	572	180	673	73	47	68	55	182	2,743
1892	308	209	78	188	140	571	217	890	72	68	94	48	222	3,105
1893	331	239	76	208	122	605	191	685	76	56	78	65	194	2,926
Average	251	244	79	155	127	551	144	612	62	54	61	62	176	2,583

* Meningitis and cerebritis included.

Table No. 35 gives the mortality of the principal local diseases from 1884 to 1893, inclusive. The total number of deaths returned under this classification in 1893 was 2,926 as against 3,105 for the previous year.

The chief cause of mortality in these tables is pneumonia, which is chargeable with 685 deaths in 1893 as against 890 for the previous year. This return shows a large falling off

over the death-rate of 1892; but the rate is still a little higher than the average for ten years.

Heart disease shows 605 deaths in 1893 as against 571 for the previous year.

Apoplexy shows 331 deaths in 1893 as against 308 in 1892. The average number of deaths from this cause for ten years is 251.

Bright's disease caused 194 deaths in 1893 as against 222 the previous year.

TABLE No. 36.

Mortality from Principal Developmental Diseases from 1884 *to* 1893, *inclusive.*

YEARS.	DISEASES.									
	Still-born.	Debility, infantile.	Debility, premature birth.	Malformation.	Teething.	Innutrition.	Childbirth.	Old age.	Atrophy and debility.	Total.
1884	156	*	35	13	19	*	27	457	144	851
1885	145	*	39	13	13	*	31	420	167	828
1886	140	68	54	12	16	50	30	468	98	936
1887	166	56	63	10	20	76	27	449	78	945
1888	189	91	69	19	20	81	20	407	112	1,008
1889	220	79	68	24	18	63	27	426	104	1,029
1890	197	113	65	11	15	95	28	410	204	1,138
1891	213	104	73	18	14	90	23	385	208	1,128
1892	205	101	82	21	11	81	19	441	75	1,036
1893	203	90	102	12	12	100	22	402	94	1,037
Average	183	70	65	15	16	64	25	426	128	994

* Classed with atrophy and debility.

Table No. 36 shows the number of decedents from the principal developmental diseases for the ten years given.

TABLE No. 37.

Mortality from Twenty Prominent Causes from 1884 *to* 1893, *inclusive.*

CAUSES OF DEATH.	Deaths in 1893.	ORDER OF FATALITY.									
		1893	1892	1891	1890	1889	1888	1887	1886	1885	1884
Consumption	737	1	2	1	1	1	1	1	1	1	1
Pneumonia	685	2	1	2	2	2	2	3	5	2	5
Heart disease	605	3	3	3	3	3	3	2	2	4	2
Apoplexy and paralysis	570	4	4	4	4	4	4	4	3	3	4
Old age	402	6	5	6	5	5	5	5	4	5	3
Cholera infantum	423	5	6	5	6	6	6	6	6	6	6
Cancer	283	8	8	8	7	7	7	7	7	7	7
Diphtheria	63	20	13	13	12	8	15	9	10	18	13
Accident and negligence	292	7	9	7	8	9	8	8	9	8	11
Typhoid fever*	121	13	15	11	13	10	9	10	8	9	10
Cephalitis †	208	9	11	12	11	11	10	12	11	10	12
Diarrhea and dysentery	113	14	17	18	17	12	12	14	13	15	9
Bright's disease	123	11	12	14	16	13	20	15	15	14	14
Bronchitis	191	10	10	10	10	14	11	13	17	12	17
Brain disease	122	12	14	16	14	15	13	11	12	11	8
Atrophy and debility	94	16	20	9	9	16	14	18	14	13	18
Croup	36	21	21	21	21	17	16	16	21	19	22
Debility, infantile	90	18	16	17	15	18	17	23	22	‡	....
Convulsions	76	19	19	20	20	19	18	21	19	16	15
Innutrition	100	15	18	19	18	20	19	19	23	‡	....
Influenza	91	17	7	15	19	....	....	....	....	....	....

* Fever, bilious fever, malarial, intermittent, and typho-malarial fevers included.
† Meningitis and cerebritis included. ‡ Classed with atrophy and debility.

Table No. 37 and diagram No. 1 show the mortality from twenty of the most prominent causes of death from 1884 to 1893 inclusive. In these tables consumption stands at the head, as it always has, with the single exception of 1892, when pneumonia ranked first.

Consumption is responsible for 737 deaths in 1893, while the average for ten years has 768 deaths. The table alluded to shows the order of fatality from the diseases given for the period named. A further consideration of some of these diseases will be found in the following tables.

DIAGRAM NO. 1.—SHOWING THE COMPARATIVE MORTALITY, BY ABSOLUTE NUMBER OF DECEDENTS FROM TWENTY PROMINENT CAUSES OF DEATH DURING YEAR ENDING DECEMBER 31, 1893.



TABLE No. 38.

Mortality from Consumption from 1884 *to* 1893, *inclusive.*

YEARS.	Deaths.	Percentages of deaths to deaths from all causes.	Death-rate per 10,000 living population.
1884	865	14.01	24.18
1885	857	13.82	23.68
1886	809	12.58	22.17
1887	766	11.82	20.82
1888	742	10.82	20.01
1889	651	9.72	17.42
1890	825	11.19	21.91
1891	695	9.51	18.31
1892	736	9.21	19.24
1893	737	9.62	19.13

Table No. 38 shows the mortality from consumption, the percentages of deaths to deaths from all causes, and the death-rate for every 10,000 of the living population from 1884 to 1893 inclusive.

Table No. 39 shows the mortality from consumption for the same period with percentages to the total mortality by counties, the highest percentage being found in Belknap county, 12.74, and the lowest in Grafton county, 7.61.

TABLE No. 39.

Mortality from Consumption, by Counties, with Percentages of Deaths to Total Mortality, from 1884 to 1893, inclusive.

COUNTIES.	1884.		1885.		1886.		1887.		1888.		1889.		1890.		1891.		1892.		1893.	
	Deaths.	Percentages.	Deaths.	Percentages.	Deaths.	Percentages.	Deaths.	Percentages.	Deaths.	Percentages.	Deaths.	Percentages.	Deaths.	Percentages.	Deaths.	Percentages.	Deaths.	Percentages.	Deaths.	Percentages.
Rockingham....	130	14.89	134	14.70	142	14.74	130	14.84	96	10.71	88	10.05	134	12.58	85	8.57	133	12.96	113	10.94
Strafford.....	105	16.74	96	15.50	96	15.76	80	11.88	93	13.51	75	10.85	117	14.60	94	11.62	84	9.72	78	10.51
Belknap.....	54	18.94	50	17.30	37	10.22	48	13.00	46	11.73	42	10.79	40	10.69	44	11.23	35	7.95	47	12.74
Carroll.....	46	13.81	33	12.26	41	13.53	33	11.22	26	7.92	29	9.73	25	8.25	32	9.38	36	10.53	36	11.80
Merrimack.....	91	12.36	102	12.81	79	9.48	96	11.49	101	10.97	88	9.87	114	11.59	89	9.36	100	9.40	108	10.16
Hillsborough...	229	13.83	233	13.69	218	12.96	179	10.55	209	11.32	168	9.64	204	10.33	197	10.06	175	8.36	190	9.03
Cheshire.....	62	12.47	75	15.18	60	12.63	50	10.37	47	9.63	53	10.09	51	9.15	49	10.16	56	9.21	48	8.06
Sullivan.....	36	13.18	36	12.67	45	13.72	32	11.30	36	11.00	28	8.91	32	9.63	20	7.15	27	7.07	32	8.84
Grafton.....	83	12.73	70	11.45	72	11.72	80	13.28	63	9.61	58	9.27	70	10.75	57	8.79	58	7.77	53	7.61
Coös.....	32	12.16	28	12.33	19	7.42	38	10.32	25	7.96	22	6.32	38	11.51	28	6.10	32	7.60	32	8.10
Total.....	868	14.01	857	13.82	809	12.58	766	11.82	742	10.82	651	9.72	825	11.19	695	9.51	736	9.21	737	9.62

TABLE No. 40.

Deaths from Pulmonary Consumption, by Seasons, Ages, and Nativity, 1893, for the City of Manchester.

Months	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.	American.	Foreign.	Not stated.
	11	5	11	8	5	7	12	3	6	8	8	7				
Quarters	27			20			21			23			91			
Ages	Under 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Not stated.					
	9	3	8	27	21	10	6	6			1					
Nativity														48	41	2
Males													43			
Females													48			

Table No. 40 gives the deaths from consumption by season, age, and nativity, in the city of Manchester for 1893. Total number of deaths from this cause was 91, exactly the same as was reported the previous year. Of the decedents, 43 were males, and 48 females; 48 were American born, 41 foreign born, and 2 nativity not stated. The fatality by months was as follows: 7 in June and December; July, 12; January and March, 11 each; April, October, and November, 8 each; September, 6; February and May, 5 each; August, 3.

Twenty-seven were between 20 and 30 years of age; 21, between 30 and 40; 10 between 40 and 50; 9 under 10 years of age; 8 between 15 and 20; 6 between 50 and 60; 6 between 60 and 70; 3 between 10 and 15; and 1, age not stated.

TABLE No. 41.

Deaths from Pulmonary Consumption by Seasons, Ages, and Nativity, 1893, for the City of Concord.

Months	5 January.	1 February.	3 March.	5 April.	4 May.	4 June.	1 July.	7 August.	3 September.	3 October.	3 November.	1 December.	Total.	American.	Foreign.	Not stated.
Quarters	9			13			11			7			40			
Ages	1 Under 10.	1 10 to 15.	2 15 to 20.	16 20 to 30.	7 30 to 40.	5 40 to 50.	4 50 to 60.	3 60 to 70.	1 70 to 80.	Over 80.	Not stated.					
Nativity														31	9	..
Males													14	..	..	..
Females													26	..	..	..

Table No. 41 is a record of consumption in the city of Concord for the year 1893. There was a total of 40 deaths from this disease, 14 males and 26 females; 31 were American born, and 9 foreign born.

Seven died in August; 5 in January and April; 4 in May and June; 3 in March, September, October, and November; 1 in February, July, and December.

Of the ages, 16 were between 20 and 30; 7 between 30 and 40; 5 between 40 and 50; 4 between 50 and 60; 3 between 60 and 70; 1 under 10; 1 between 10 and 15; and 1 between 70 and 80.

TABLE No. 42.

Deaths from Pulmonary Consumption, by Seasons, Ages, and Nativity, 1893, for the City of Nashua.

Months	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.	American.	Foreign.	Not stated.
	3	1	1	1	3	1	5	1	4	1	4	5				
Quarters	5			5			10			10			30			
Ages	Under 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Not stated.					
	3		3	11	5	2	3		1	1	1					
Nativity	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	....	12	12	6
Males	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	16	..	..	..
Females	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14	..	..	..

Table No. 42 represents the mortality from consumption in Nashua for 1893, the total number being 30, 16 males and 14 females. Twelve were American born, 12 foreign born, and 6 nativity not stated.

There were 5 deaths in July and December; 4 in September and November; 3 in January and May; and 1 in February, March, April, June, August, and October.

Eleven of the decedents were between 20 and 30; 5 between 30 and 40; 3 under 10; 3 between 15 and 20; 3 between 50 and 60; 2 between 40 and 50; 1 between 70 and 80; 1 over 80, and 1 age not stated.

TABLE No. 43.

Deaths from Pulmonary Consumption, by Seasons, Ages, and Nativity, 1893, for the City of Portsmouth.

Months	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.	American.	Foreign.	Not stated.
	1	2	1	2	2	3	5	1	2		1	4				
Quarters		4			7			8			5		24			
Ages	Under 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Not stated.					
	1		3	4	6	5	2	2	1							
Nativity														17	6	1
Males													17			
Females													7			

In Portsmouth the deaths from consumption for 1893 are represented in table No. 43. There was a total of 24 deaths, 17 males and 7 females. Seventeen were American born, 6 foreign born, and 1 nativity not stated.

Five died in July; 4 in December; 3 in June; 2 in February, April, May, and September; 1 in January, March, August, and November.

Six decedents were between 30 and 40 years of age; 5 between 40 and 50; 4 between 20 and 30; 3 between 15 and 20; 2 between 50 and 60; 2 between 60 and 70; 1 under 10; 1 between 70 and 80.

TABLE No. 44.

Deaths from Pulmonary Consumption, by Seasons, Ages, and Nativity, 1893, for the City of Dover.

Months	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.	American.	Foreign.	Not stated.
	1	5	6	3	4	2	2	3	5	3	5	4				
Quarters	12			9			10			12			43			
Ages	Under 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Not stated.					
	2		5	16	11	4	4	1								
Nativity														32	9	2
Males													21			
Females													22			

Table No. 44 shows the deaths from consumption in Dover for the year 1893, there being a total of 43—21 males and 22 females. Of the decedents 32 were American born, 9 foreign born, and 2 nativity not stated.

Six died in March; 5 in February, September, and November; 4 in May and December; 3 in April, August, and October; 2 in June and July; 1 in January.

Sixteen were between 20 and 30 years of age; 11 between 30 and 40; 5 between 15 and 20; 4 between 40 and 50; 4 between 50 and 60; 2 under 10; 1 between 60 and 70.

TABLE No. 45.

Deaths from Pulmonary Consumption, by Seasons, Ages, and Nativity, 1893, for the City of Keene.

Months	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.	American.	Foreign.	Not stated.
	1	2		1	2	4	2				1	2				
Quarters	3			7			2			3			15			
Ages	Under 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Not stated.					
	1		2	3	6	1	1	1								
Nativity														14	1	
Males													7			
Females													8			

Table No. 45 shows the deaths in Keene from consumption in 1893, the total number being 15—7 males and 8 females. Fourteen were American born, and 1 foreign born.

Four died in June; 2 in February, May, July, and December; 1 in January, April, and November.

Six were between 30 and 40 years of age; 3 between 20 and 30; 2 between 15 and 20; 1 under 10; 1 between 40 and 50; 1 between 50 and 60, and 1 between 60 and 70.

TABLE No. 46.

Deaths from Pulmonary Consumption, by Seasons, Ages, and Nativity, 1893, for the City of Rochester.

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TABLE No. 47.

Deaths from Pulmonary Consumption, by Seasons, Ages, and Nativity, 1893, for the City of Laconia.

Months	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.	American.	Foreign.	Not stated.
	2		1	2	1	1	2		3	2	2	4				
Quarters		3			4			5			8		20			
Ages	Under 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Not stated.					
	2	1	1	8	2	2		2	2							
Nativity														12	6	2
Males													8			
Females													12			

Table No. 47 shows the deaths in Laconia from consumption in 1893, a total of 20—8 males and 12 females. Twelve were American born, 6 foreign born, and 2 nativity not stated.

Four died in December; 3 in September; 2 in January, April, July, October, and November; 1 in March, May, and June.

Eight were between 20 and 30; 2 under 10; 2 between 30 and 40; 2 between 40 and 50; 2 between 60 and 70; 2 between 70 and 80; 1 between 10 and 15; 1 between 15 and 20.

TABLE No. 48.

Deaths from Pulmonary Consumption, by Seasons, Ages, and Nativity, 1893, for the City of Somersworth.

Months	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.	American.	Foreign.	Not stated.
	1	1	3		1			3	1	2	1	2				
Quarters	4			1			4			5			14			
Ages	Under 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Not stated.					
	3	2	1	2	2	1	1	1	1							
Nativity														7	7	
Males													6			
Females													8			

Table No. 48 shows the deaths from consumption in 1893 for Somersworth, a total of 14—6 males and 8 females. Seven American born and 7 foreign born.

Three died in March; 3 in August; 2 in October; 2 in December; 1 in February, May, September, and November.

Three were under 10 years of age; 2 between 10 and 15; 2 between 20 and 30; 2 between 30 and 40; 1 between 15 and 20; 1 between 40 and 50; 1 between 50 and 60; 1 between 60 and 70; 1 between 70 and 80.

TABLE No. 49.

Percentage of Deaths from Consumption to the Total Mortality of the Cities of the State, for the years 1883 *to* 1893, *inclusive.*

	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.	1893.
Manchester	14.89	14 28	13.03	15.01	11.15	12.37	9.30	10.29	10.40	8.77	8.49
Concord	11.41	8.66	10.68	8.60	10.13	10.23	9.81	9.13	9.30	8.43	9.15
Nashua	16.96	13.72	14.86	10.49	9.73	8.20	8.64	10.69	10.29	6.47	7.69
Dover	20.97	16.60	16.17	21.17	14.57	12.01	10.31	16.40	12.01	11.18	13.03
Portsmouth	16.02	14.74	12.18	17.84	16.26	13.26	7.73	14.34	8.17	17.61	10.08
Keene	16.91	16.00	22.80	16.00	11.90	9.47	9.62	10.25	11.90	13.77	9.43
Rochester	.....	.....	.....	.....	.....	.....	.....	.....	11.80	9.70	5.31
Laconia	.....	.....	.....	.....	.....	.....	.....	.....	.....	7.75	11.49
Somersworth	.....	.....	.....	.....	.....	.....	.....	.....	.....	11.68	11.20

Table No. 49 gives a comparative view of the percentages of death from consumption in the several cities of the state for the period named; Rochester, Laconia, and Somersworth being included only since they have become cities.

Table No. 50 gives the mortality from consumption for the year 1893 by counties, ages, and sex.

Table No. 51 gives deaths from consumption for 1893 by counties, months, and sex.

TABLE No. 50.

Deaths from Consumption, by Ages and Sex, by Counties, for 1893.

COUNTIES.	SEX.	Under 1.	1 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Not stated.	Total.	Grand total.
Rockingham	Males	1	1	....	....	5	11	13	9	5	9	4	....	1	59	.....
	Females	2	....	....	4	2	17	7	8	7	5	2	....	....	54	113
Strafford	Males	1	1	1	....	4	15	6	3	5	1	1	....	1	39	.....
	Females	1	....	1	3	3	13	10	3	2	3	....	....	....	39	78
Belknap	Males	1	....	....	....	1	5	1	3	2	2	1	1	....	17	.....
	Females	....	1	....	1	3	8	5	2	....	3	6	....	1	30	47
Carroll	Males	1	....	....	....	....	7	1	6	1	2	....	....	....	18	.....
	Females	....	....	1	1	1	4	4	2	3	....	....	1	1	18	36
Merrimack	Males	2	....	1	....	3	10	14	5	5	2	5	....	....	47	.....
	Females	2	1	....	1	5	19	9	10	4	5	5	....	....	61	108
Hillsborough	Males	7	3	....	2	4	20	17	13	12	8	1	3	2	92	.....
	Females	8	1	....	1	12	31	21	8	2	6	4	2	2	98	190
Cheshire	Males	....	....	....	....	2	5	5	1	3	5	1	....	....	22	.....
	Females	....	....	1	....	1	6	7	4	3	3	....	1	....	26	48

Sullivan	Males	....	....	....	....	1	8	1	1	2	2	1	1	....	17	.....
	Females	2	....	....	....	1	5	2	1	2	....	1	1	....	15	32
Grafton	Males	1	....	....	1	....	5	6	5	2	3	1	1	....	25	.....
	Females	....	1	....	....	2	8	6	3	2	5	....	1	....	28	53
Coös	Males	3	....	....	1	2	2	1	3	1	....	....	....	1	14	.....
	Females	....	....	....	2	2	5	3	2	2	....	2	....	....	18	32
Total for State		31	9	5	17	54	204	139	92	65	64	34	14	9	737	737

TABLE No. 51.

Deaths from Consumption by Months and Sex, by Counties, for 1893.

COUNTIES.	SEX.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Not stated.	Total.	Grand total.
Rockingham	Males	6	6	3	7	3	5	8	6	2	2	3	8	....	59	.....
	Females	5	5	5	5	2	2	8	3	4	4	4	7	....	54	113
Strafford	Males	3	2	7	4	4	1	1	6	3	5	2	1	....	39	.....
	Females	....	5	5	....	2	2	2	4	7	2	4	6	....	39	78
Belknap	Males	....	....	1	2	1	....	2	1	4	....	4	2	....	17	.....
	Females	4	2	2	3	3	4	1	3	1	3	....	4	....	30	47
Carroll	Males	2	2	4	1	1	1	3	1	1	1	1	....	....	18	.....
	Females	2	....	....	4	1	1	1	....	2	2	1	4	....	18	36
Merrimack	Males	....	2	7	5	6	4	2	4	5	1	5	6	....	47	.....
	Females	8	1	1	12	3	5	5	7	5	6	3	5	....	61	108
Hillsborough	Males	9	7	10	7	4	3	10	4	10	11	6	11	....	92	.....
	Females	9	2	8	9	12	9	10	4	8	4	9	14	....	98	190
Cheshire	Males	1	....	....	2	2	3	2	3	3	3	2	1	...	22	.....
	Females	....	2	1	4	2	1	5	1	2	4	2	2	....	26	48
Sullivan	Males	2	....	1	5	2	2	2	....	....	....	2	1	....	17	.....
	Females	3	....	2	....	....	2	....	3	....	3	1	1	....	15	32

Grafton	Males	....	1	3	3	1	3	2	1	3	2	3	3	....	25	.....	
	Females	3	1	2	2	5	2	3	1	....	3	4	2	....	28	53	
Coös	Males	1	3	....	....	2	....	1	2	2	....	2	1	....	14	.....	
	Females	1	....	....	4	....	4	....	....	5	3	1	....	....	18	32	
Total for State		59	41	62	79	56	54	68	54	67	59	59	79	....	737	737	

TABLE No. 52.

Deaths from Consumption, by Nativity, Civil Condition, and Sex, by Counties, for 1893.

COUNTIES.	SEX.	American.	Foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.	Total.	Grand total.
Rockingham	Males.	41	10	8	26	24	5	4	59	....
	Females.	46	7	1	29	18	4	3	54	113
Strafford	Males	30	8	1	16	17	1	5	39	....
	Females	27	11	1	17	13	4	5	39	78
Belknap	Males	13	1	3	8	5	2	2	17	....
	Females	21	6	3	11	14	3	2	30	47
Carroll	Males	14	2	2	7	8	2	1	18	....
	Females	15	1	2	13	3	2	....	18	36
Merrimack	Males	37	8	2	19	22	5	1	47	....
	Females	46	13	2	36	15	6	4	61	108
Hillsborough	Males	58	26	8	33	25	9*	25	92	....
	Females	55	32	11	32	38	6	22	98	190
Cheshire	Males	18	3	1	14	7	1	....	22	....
	Females	24	2	....	18	6	2	....	26	48
Sullivan	Males	16	....	1	10	6	1	....	17	....
	Females	10	4	1	6	5	3	1	15	32
Grafton	Males	21	3	1	12	8	3	2	25	....
	Females	20	2	6	18	7	2	1	28	53
Coös	Males	9	5	....	5	9	....	....	14	....
	Females	6	7	5	11	5	2	....	18	32
Total for state		527	151	59	341	255	63	78	737	737

* Divorced, 3.

Table No. 52 gives the number of deaths from consumption for the year 1893, by counties, nativity, civil condition, and sex.

Out of a total of 737 who died of consumption in 1893, 527 were American born, 151 foreign born, and 59 with nativity not stated.

There were 341 married, 255 single, 63 widowed (including 3 divorced), and 78 civil condition not stated.

PNEUMONIA.

TABLE No. 53.

Mortality from Pneumonia, by Counties, from 1884 to 1893, inclusive.

COUNTIES.	YEARS.										Average.
	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	
Rockingham	45	63	77	70	83	66	90	77	96	88	76
Strafford	39	48	37	46	52	38	80	73	96	65	57
Belknap	18	24	25	44	50	37	42	28	55	31	35
Carroll	30	27	15	33	46	49	37	42	50	19	34
Merrimack	50	72	60	85	73	86	94	73	137	95	82
Hillsborough	110	128	112	128	129	131	158	185	175	159	141
Cheshire	36	52	39	55	55	52	44	54	86	64	54
Sullivan	21	22	23	22	30	31	32	31	62	45	32
Grafton	66	48	54	52	77	64	74	53	84	71	64
Coös	21	20	24	21	33	26	52	57	49	48	35
Total	436	504	466	556	628	582	703	673	890	685	612

Table No. 53 gives the mortality from pneumonia, by counties, from 1884 to 1893, inclusive, with the averages for the entire period. The total number of deaths from this disease in 1893 was 685, which is 205 less than was returned the previous year, but which number is still higher than the average for the period covered by the entire table. The influence of influenza was responsible for the high rate of mortality from pneumonia in 1892, and probably accounts for the relatively high death-rate from this disease since 1889.

TABLE No. 54.

Mortality from Pneumonia from 1884 *to* 1893, *inclusive, by Ages.*

YEARS.	Under 1.	1 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Unknown.	Total.
1884.....	51	48	3	3	6	27	23	30	36	50	97	54	8	436
1885.....	69	49	8	4	11	15	27	32	37	72	105	74	1	504
1886.....	57	38	13	6	13	17	24	29	49	68	92	53	7	466
1887.....	68	33	7	5	13	28	32	40	48	89	121	68	4	556
1888.....	67	45	6	10	19	40	49	51	62	67	123	81	8	628
1889....	61	50	8	12	17	29	36	40	48	98	100	79	4	582
1890.....	73	48	9	10	11	35	46	45	79	106	127	107	7	703
1891.....	73	43	15	6	11	43	31	38	74	109	126	95	9	673
1892.....	77	49	13	6	12	41	61	60	95	147	190	128	11	890
1893.....	86	65	15	5	15	36	39	55	60	95	120	88	6	685

Table No. 54 shows the mortality from pneumonia, by ages, from 1884 to 1893, inclusive. It will be seen by a careful study of this table that the great mortality from this disease is among the aged. If this heavy death-rate from pneumonia in persons above 60 years of age were computed upon the living population of the age periods, it would be seen that the death-rate among the aged from pneumonia is really very heavy. It will also be noticed that it is a disease of considerable fatality in infants under one year of age.

TABLE No. 55.

Mortality from Pneumonia by Months and Quarters, from 1884 *to* 1893, *inclusive.*

YEARS.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Not stated.
1884	55	55	51	52	32	13	14	11	5	28	51	67	2
1885	53	59	101	95	35	25	13	10	10	33	38	32	...
1886	32	44	73	51	51	33	22	18	18	24	46	54	...
1887	71	73	85	85	49	17	13	13	14	34	47	54	1
1888	72	95	75	73	76	24	16	23	21	43	36	72	2
1889	69	66	79	102	51	22	15	19	16	53	41	49	...
1890	213	74	69	43	47	35	18	9	23	23	69	79	1
1891	73	60	82	72	95	41	13	7	14	23	37	152	4
1892	384	110	83	86	57	21	5	11	19	21	34	54	5
1893	75	71	95	87	67	38	18	14	14	24	48	133	1
Total	1,097	707	793	746	560	269	147	135	154	306	447	756	
	2,587			1,575			436			1,499			

Table 55 gives the mortality from pneumonia, by months and quarters, for the ten years covered by the table. The largest mortality for the year 1893 was in December, it being considerably more than double the death-rate from the same disease in the preceding December. The effect of influenza upon the mortality of this disease is apparent in the study of the death-rate by months as exhibited in the above table.

BRAIN DISEASES.

TABLE No. 56.

Mortality from Brain Diseases from 1884 to 1893, inclusive.

YEARS.	DISEASES.						
	Cephalitis.*	Apoplexy.	Paralysis.	Insanity.	Convulsions.	Brain diseases.	Total.
1884	120	192	248	22	99	134	815
1885	133	206	278	27	93	122	859
1886	141	220	249	24	71	127	832
1887	117	210	253	25	64	121	790
1888	143	243	273	37	88	112	896
1889	151	259	196	35	76	126	843
1890	186	263	251	28	65	140	933
1891	161	283	241	44	78	130	917
1892	173	308	209	33	78	140	941
1893	208	331	239	26	76	122	1,002
Average	153	251	244	30	79	127	883

*Meningitis and Cerebritis included.

Table No. 56 shows the mortality from brain diseases from 1884 to 1893, inclusive. There is an increased mortality from certain diseases of the brain, notably in cephalitis, under which are classed the inflammatory diseases of the brain. Apoplexy exhibits a higher death-rate than heretofore. The total number of deaths chargeable to brain diseases for the year 1893 is 1,002, the highest number returned for the years embraced in the table.

DIARRHŒAL DISEASES.

TABLE No. 57.

Mortality from Diarrhœal Diseases from 1884 *to* 1893, *inclusive.*

YEARS.	DISEASES.					Total of diarrhœal diseases.
	Cholera infantum.	Cholera morbus.	Diarrhœa.	Dysentery.	Enteritis.	
1884	266	21	52	80	69	488
1885	219	20	40	40	57	376
1886	362	14	38	79	53	546
1887	336	16	38	53	57	500
1888	370	8	50	63	39	530
1889	353	12	68	67	56	556
1890	399	12	.....	50	63	524
1891	486	16	46	51	73	672
1892	366	17	53	42	72	550
1893	423	20	50	63	76	632
Average	358	16	43	59	61	574

Table No. 57 gives the mortality from diarrhœal diseases for the past ten years. Cholera infantum, which is responsible for the largest number of deaths in this group, shows a higher mortality than for the previous year, and considerably higher than the average for the ten years included in the table. The total number of deaths under this class for the year is 632, the average for the ten years being 574.

CHOLERA INFANTUM.

TABLE No. 58.

Mortality from Cholera Infantum from 1884 *to* 1893, *inclusive.*

YEARS.	Deaths.	Percentage of deaths to deaths from all causes.	Death-rates per 10,000 living (estimated population).
1884	266	4.29	7.41
1885	219	3.53	6.05
1886	362	5.63	9.92
1887	336	5.18	9.13
1888	370	5.39	9.98
1889	353	5.27	9.44
1890	399	5.41	10.59
1891	486	6.64	12.08
1892	366	4.58	9.57
1893	423	5.52	10.97
Average	358	5.14	9.51

In Table No. 58 is exhibited the mortality from cholera infantum for ten years, together with percentages of deaths from this disease to the total number of deaths, and also its death-rate per 10,000 of the living population. The average number of deaths from cholera infantum during this ten year period is 358 annually, while for the year 1893 it was 423, a figure which has been exceeded only once during the period embraced in the table.

TABLE No. 59.

Mortality from Cholera Infantum, by Ages, from 1884, *to* 1893, *inclusive.*

YEARS.	Under 1.	1 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Unknown.	Total.
1884.....	214	48	....	....	....	....	1	....	1	....	....	...	2	266
1885.....	186	33	....	....	....	....	....	....	....	....	....	...	...	219
1886.....	283	77	2	....	....	....	....	....	....	....	....	...	...	362
1887.....	284	51	....	....	....	....	....	....	....	....	....	...	1	336
1888.....	298	70	....	....	....	....	....	....	....	....	....	...	2	370
1889.....	297	54	1	....	....	....	....	....	....	....	....	...	1	353
1890.....	343	52	4	....	....	....	....	....	....	....	....	...	...	399
1891.....	409	74	3	....	....	....	....	....	....	....	....	...	...	486
1892.....	320	41	4	1	....	....	....	....	....	....	....	...	...	366
1893.....	369	52	2	....	....	....	....	....	....	....	....	...	...	423

The above table shows the mortality from cholera infantum by years and age periods from 1884 to 1893 inclusive. It will be seen by this table that cholera infantum is almost wholly a disease of early infancy, the majority of deaths occurring from it being in children under one year of age.

TABLE No. 60.

Cholera Infantum by Cities.

CITIES.	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893
Manchester	131	112	88	122	148	117	86	146	122	102	86
Dover	7	10	15	15	13	19	5	12	25	18	14
Nashua	15	14	13	30	20	39	43	56	55	36	49
Portsmouth	4	3	9	6	4	9	9	8	11	6	9
Concord	9	12	5	7	8	11	13	8	25	20	27
Keene	9	6	2	7	5	2	8	5	5	4	1
Rochester	....	....	....	....	....	....	....	....	8	5	6
Laconia	....	....	....	....	....	....	....	....	....	7	16
Somersworth	....	....	....	....	....	....	....	....	....	11	16
Total for cities	175	157	132	187	198	197	164	235	251	209	226
Total for state	278	268	219	362	336	370	353	399	486	366	423

The foregoing table shows the mortality from cholera infantum in the cities of the state for the periods given in the table. Over one half of the deaths occurring in this state from this disease is in the cities given, a great majority of which is to be found in the record for Manchester. These facts are exceedingly suggestive in the study of the disease, and should lead the local health authorities, especially in Manchester, to consider methods for reducing infant mortality from this cause.

The next table, No. 61, gives the number of decedents from cholera infantum in the cities and towns returning the greatest mortality from the disease by ages, sex, and months.

TABLE No. 61.

Cholera Infantum by Ages, Sex, and Months, particularly showing the number of Decedents in the Cities and Towns, returning the greatest Mortality from the disease, 1893.

TOWNS.	SEX.	AGES.			MONTHS.													
		Under 1.	1 to 5.	5 to 10.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Unknown.	Total.	Grand total.
Concord	Males	12	3	....	....	....	....	....	....	....	7	4	3	1	....	....	....	15	....
	Females	11	1	....	....	....	1	....	....	....	2	3	5	1	....	....	....	12	27
Dover	Males	6	....	....	....	....	....	....	....	....	1	4	....	1	....	....	....	6	....
	Females	9	1	....	....	....	....	....	....	1	3	4	....	2	....	....	....	10	16
Keene	Males	1	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	1	....
	Females	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1
Manchester	Males	39	2	1	....	....	....	1	....	1	10	13	15	2	....	....	....	42	....
	Females	39	5	....	....	....	2	....	1	....	6	19	13	3	....	....	....	44	46
Nashua	Males	26	6	....	....	....	....	....	....	....	14	10	4	4	....	....	....	32	....
	Females	17	....	....	....	....	....	....	....	....	5	8	1	3	....	....	....	17	49
Portsmouth	Males	7	1	....	....	....	....	....	....	....	1	5	1	....	1	....	....	8	....
	Females	....	1	....	....	....	....	....	....	....	....	....	1	....	....	....	....	1	9

TABLE No. 61.—*Continued.*

TOWNS.	SEX.	AGES.			MONTHS.														
		Under 1.	1 to 5.	5 to 10.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Unknown.	Total.	Grand total.
Laconia	Males	10	1	....	....	....	....	....	....	....	....	6	5	....	....	....	....	11	....
	Females	3	1	1	....	....	....	....	....	....	....	4	....	1	....	....	....	5	16
Somersworth	Males	4	....	....	....	....	1	....	1	....	....	1	....	1	....	....	....	4	....
	Females	11	1	....	....	1	1	1	....	....	2	3	2	1	1	....	....	12	16
Rochester	Males	5	....	....	....	....	....	....	....	1	....	2	1	1	....	....	....	5	....
	Females	1	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	1	6
Berlin	Males	20	1	....	....	....	....	....	....	....	4	15	1	1	....	....	....	21	....
	Females	14	1	....	....	....	....	....	....	....	7	7	1	....	....	....	....	15	36
Franklin	Males	1	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	1	....
	Females	3	1	....	....	....	....	....	....	....	....	1	2	1	....	....	....	4	5
Pembroke	Males	7	....	....	....	....	....	....	....	....	3	2	2	....	....	....	....	7	....
	Females	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	7
Newmarket	Males	5	....	....	....	....	....	....	....	....	1	3	1	....	....	....	....	5	
	Females	2	1	....	....	....	....	....	....	....	....	2	....	....	1	....	....	3	8

Littleton	Males	2	2	....	....	....	....	....	1	....	1	1	1	....	..	..	....	4	....
	Females	1	....	....	....	....	....	....	....	....	....	1	....	....	..	..	..	1	5
Remaining towns	Males	56	14	....	....	1	....	1	....	2	12	22	24	4	3	..	1	70	....
	Females	57	9	....	....	....	....	....	....	....	5	21	29	6	3	1	1	66	123
Total	Males	201	30	1	....	2	1	2	2	4	54	89	58	15	4	..	1	232	....
	Females	168	22	1	....	1	4	1	1	1	30	74	54	18	5	1	1	191	423

TABLE No. 62.

Mortality from Cancer, with rates to estimated Population and to Total Mortality from 1884 *to* 1893, *inclusive.*

YEARS.	Deaths.	Death-rates per 10,000 of estimated population.	Ratio to total mortality per 1,000.
1884	213	5.93	34.39
1885	212	5.85	34.19
1886	206	5.64	32.06
1887	218	5.92	33.65
1888	203	5.47	29.62
1889	213	5.70	31.81
1890	276	7.33	37.45
1891	213	5.61	30.32
1892	235	6.14	29.41
1893	283	7.34	30.67

Table No. 62 gives the mortality from cancer from 1884 to 1893 inclusive, with ratios to the total mortality and to the estimated population. This table is striking in the uniformity of the mortality from this disease from year to year.

TABLE No. 63.

Mortality from Diphtheria from 1884 *to* 1893, *inclusive, by Ages.*

YEARS.	Under 1.	1 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Unknown.	Total.
1884.....	8	39	34	17	4	2	....	1	3	....	....	1	1	110
1885.....	10	32	22	5	3	4	....	1	1	....	....	...	...	78
1886.....	9	53	58	22	7	3	1	1	2	....	....	...	...	156
1887.....	7	74	51	20	6	9	4	2	1	1	1	...	1	177
1888.....	6	43	36	7	4	2	1	1	2	1	....	...	...	103
1889.....	7	86	68	18	13	10	3	3	....	1	....	...	1	210
1890.....	6	64	45	26	10	3	4	3	....	....	....	1	2	164
1891.....	5	74	48	17	7	2	4	....	....	1	....	...	2	160
1892.....	9	54	37	14	5	6	2	2	....	2	....	...	3	134
1893.....	6	23	19	9	1	3	1	1	....	....	....	...	...	63

Table No. 63 shows the mortality from diphtheria by age periods from 1884 to 1893 inclusive. It is gratifying to be able to record the fact that in the year 1893 the death-rate from this disease was lower than for any year heretofore reported. The number of deaths fell off more than one half as compared with the previous year. It will also be observed that there has been a steady diminution in the mortality from diphtheria in New Hampshire since 1889. It is not unreasonable to suppose that this may be in a measure, if not largely, due to the increased activity of local boards of health in carrying out isolation and disinfection.

The next table (No. 64) shows the distribution of diphtheria in the cities and towns returning the greatest mortality from the disease, and also the deaths by ages, sex, and months.

TABLE No. 64.

Diphtheria, by Ages, Sex, and Months, particularly showing number of Decedents in the Cities and Towns returning the greatest Mortality from this Disease.

Sex.	Months.												TOWNS.	Whole Number.				Ages.											
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Unknown.		Totals.	Males.	Females.	Unknown.	Under 1.	1 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Unknown.
M	1	1					1							Concord	7	3	4	....	1	1	1	....	....							
F		2	1				1							"	....	....	....	....	....	2	2	....	....							
M							1							Dover	2	1	1	....	1	....	....	....	....							
F					1									"	....	....	....	....	....	....	....	1	....							
M	1													Keene	2	1	1	....	....	1	....	....	....							
F		1												"	....	....	....	....	....	....	1	....	....							
M					1					2				Laconia	5	3	2	....	....	2	1	....	....							
F						2								"	....	....	....	....	1	1	....	....	....							
M														Manchester	2	....	2	....	....	....	....	....	....							
F										1	1			"	....	....	....	....	....	1	....	1	....							
M									1					Nashua	1	1	....	....	....	....	....	....	1							
F														"	....	....	....	....	....	....	....	....	....							
M						2	1		2					Portsmouth	15	5	10	....	1	1	1	1	....			1				
F						2	5	1		1	1			"	....	....	....	....	....	4	5	1	....							
M								1						Rochester	4	1	3	....	....	....	1	....	....							
F		1		1						1				"	....	....	....	....	....	2	....	1	....							
M														Somersworth	1	....	1	....	....	....	....	....	....							
F		1												"	....	....	....	....	....	1	....	....	....							

| | | |

CROUP.

TABLE No. 65.

Mortality from Croup from 1884 *to* 1893, *inclusive, by Ages.*

YEARS.	Under 1.	1 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Unknown.	Total.
1884.....	8	35	6	....	....	....	....	....	....	....	....	....	....	49
1885.....	20	41	9	....	....	1	2	....	1	....	....	....	....	74
1886.....	13	40	10	1	....	....	....	....	....	....	....	....	....	64
1887.....	26	48	7	2	....	....	....	....	....	....	1	....	....	84
1888.....	16	67	9	....	....	....	1	....	....	....	1	....	....	94
1889.....	11	65	11	1	....	....	....	....	....	....	....	....	....	88
1890.....	16	41	6	1	....	....	....	....	....	....	....	....	....	64
1891.....	11	32	10	2	....	....	....	....	....	....	....	....	1	56
1892.....	6	32	5	1	1	....	....	....	....	....	....	....	....	45
1893.....	8	16	10	2	....	....	....	....	....	....	....	....	....	36

Table No. 65 shows the mortality from croup from 1884 to 1893 inclusive, by age periods. This table corresponds in its ratios very closely to the corresponding table (No. 63) relating to diphtheria. It will be seen that, like diphtheria, there has been a constant diminution in the mortality from this disease since 1888. There is no especial reason why croup and diphtheria should be any longer separated in statistical tables, inasmuch as membranous croup and diphtheria are now deemed by the best authorities to be the same disease.

TABLE No. 66.

Mortality from Croup and Diphtheria from 1884 *to* 1893 *inclusive.*

YEARS.	Deaths.			Percentages of deaths to deaths from all causes.			Death-rates per 10,000 living.		
	Croup.	Diphtheria.	Total.	Croup.	Diphtheria.	Total.	Croup.	Diphtheria.	Total.
1884.....	49	110	159	.79	1.77	2.56	1.36	3.06	4.42
1885.....	74	78	152	1.19	1.25	2.44	2.04	2.15	4.19
1886.....	64	156	220	.99	2.41	3.40	1.75	4.27	6.02
1887.....	84	177	261	1.29	2.73	4.02	2.28	4.81	7.09
1888.....	94	103	197	1.37	1.50	2.87	2.53	2.77	5.30
1889.....	88	210	298	1.31	3.13	4.44	2.35	5.61	7.96
1890.....	64	164	228	.86	2.21	3.08	1.69	4.32	6.02
1891.....	56	160	216	.79	2.20	2.10	1.48	4.22	5.69
1892.....	45	134	179	.56	1.69	2.25	1.18	3.50	4.68
1893.....	36	63	99	.47	.82	1.29	.93	1.63	2.57
Total	654	1,355	2,009	.....	.....	.....	.....	.....	.....
Average..	65	135	201	.96	1.97	2.84	1.76	3.63	5.39

In table No. 66 croup and diphtheria are combined for the purpose of comparison. The number of deaths, percentages of deaths to deaths from all causes, and the death-rate to each 10,000 living persons from 1884 to 1893 inclusive, is given.

TABLE No. 67.

Mortality from Typhoid Fever from 1884 *to* 1893 *inclusive.*

YEARS.	Deaths.	Percentages of deaths to deaths from all causes.	Death-rates per 10,000 living (estimated population).
1884	137	2.21	3.81
1885	136	2.19	3.75
1886	194	3.01	5.31
1887	134	2.06	3.64
1888	150	2.18	4.04
1889	161	2.40	4.30
1890	143	1.94	3.79
1891	170	2.42	4.48
1892	109	1.36	2.85
1893	121	1.58	3.14
Total	1,455	.....	.....
Average	145	2.13	3.91

Table No. 67 exhibits the mortality from typhoid fever from 1884 to 1893 inclusive. It will be seen for the latter year that the total number of deaths from this disease was 121, a slight increase over the number reported for the previous year, but lower than the average for the past ten years. The death-rate for the years given is also calculated in percentages.

TABLE No. 68.

Mortality from Typhoid Fever, by Counties, with Percentages of Deaths to Total Mortality, from 1884 to 1893, inclusive.

COUNTIES.	1884.		1885.		1886.		1887.		1888.		1889.		1890.		1891.		1892.		1893.	
	Deaths.	Percentages.	Deaths.	Percentages.	Deaths.	Percentages.	Deaths.	Percentages.	Deaths.	Percentages.	Deaths.	Percentages.	Deaths.	Percentages.	Deaths.	Percentages.	Deaths.	Percentages.	Deaths.	Percentages.
Rockingham	17	1.94	18	1.97	23	2.38	10	1.14	9	1.00	15	1.71	12	1.12	30	3.03	16	1.56	8	.77
Strafford	12	1.91	12	1.93	21	3.44	17	2.52	13	1.88	19	2.74	19	2.37	12	1.48	11	1.27	20	2.69
Belknap	13	4.56	9	3.11	31	8.56	13	3.52	8	2.04	8	2.05	13	3.47	5	1.28	4	1.02	4	1.09
Carroll	4	1.20	8	2.97	3	.99	5	1.70	6	1.82	6	2.01	2	.66	3	.88	2	.58	2	.65
Merrimack	15	2.03	15	1.88	23	2.76	14	1.67	33	3.58	20	2.24	27	2.74	16	1.68	11	1.03	13	1.22
Hillsborough	32	1.93	37	2.17	46	2.73	41	2.41	42	2.27	39	2.24	38	1.92	49	2.50	19	.98	28	1.33
Cheshire	14	2.81	14	2.83	12	2.52	6	1.24	5	1.02	10	1.90	10	1.79	10	2.07	8	1.31	6	1.01
Sullivan	4	1.46	4	1.40	6	1.82	5	1.76	3	.91	4	1.26	1	.30	7	2.50	9	2.35	8	2.21
Grafton	13	1.99	11	1.80	21	3.40	9	1.49	19	2.90	15	2.40	14	2.15	23	3.55	8	1.06	16	2.29
Coös	13	4.94	8	3.52	8	3.12	14	3.80	12	3.82	25	7.18	7	2.12	15	3.27	21	4.98	16	4.27
Total	137	2.21	136	2.19	194	3.01	134	2.06	150	2.18	161	2.40	143	1.94	170	2.42	109	1.36	121	1.58

Fever, bilious, malarial, intermittent, and typho-malarial fevers included.

TABLE No. 69.

Mortality from Typhoid Fever from 1884 *to* 1893 *inclusive, by Ages.*

YEARS.	Under 1 year.	1 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Unknown.	Total.
1884.....	5	10	7	11	21	34	12	8	7	8	8	3	3	137
1885.....	2	7	7	11	20	34	14	8	7	10	11	3	2	136
1886.....	2	6	15	12	33	51	16	12	15	14	16	2	...	194
1887.....	2	6	1	16	22	41	17	8	7	6	5	2	1	134
1888.....	3	13	4	11	26	39	12	8	8	9	8	3	6	150
1889.....	4	5	9	14	26	50	13	14	10	5	6	4	1	161
1890.....	1	3	10	11	24	33	18	14	10	7	7	3	2	143
1891.....	1	3	14	12	27	52	17	15	8	9	8	3	1	170
1892.....	1	6	4	10	17	24	18	8	5	6	3	4	3	109
1893.....	1	8	3	9	23	29	22	10	5	5	3	1	2	121

Table No. 69 shows the mortality from typhoid fever by age periods from 1884 to 1893 inclusive.

TABLE No. 70.

Mortality from Bright's Disease, Nephritis, and other Kidney Diseases, and from Dropsy, with Ratios to Total Mortality, from 1884 *to* 1893 *inclusive.*

YEARS.	Total mortality from all causes.	Deaths from Bright's disease, nephritis, and other kidney diseases.	Ratio to total mortality per 1,000.	Deaths from dropsy.	Ratio to total mortality per 1,000.	Totals.	Ratio to total mortality per 1,000.
1884	6,194	140	22.60	80	12.91	220	35.51
1885	6,201	157	25.32	90	14.51	247	39.83
1886	6,426	143	22.25	83	12.92	226	35.17
1887	6,479	163	25.16	79	12.19	242	37.35
1888	6,854	154	22.47	75	10.94	229	33.41
1889	6,696	200	29.87	62	9.26	262	39.13
1890	7,368	201	27.28	53	7.19	254	34.47
1891	7,310	219	29.96	41	5.61	260	35.57
1892	7,988	222	27.99	43	5.38	265	33.17
1893	7,663	194	25.32	49	6.39	243	31.71

Table No. 70 shows the mortality from kidney diseases from 1884 to 1893 inclusive, together with ratios to the total mortality per 1,000. It will be seen by this table that the death-rate from kidney diseases for 1893 was a little less than that of the previous year and lower than has been returned since 1888, and the percentage to the total mortality a little lower than has heretofore been recorded.

TABLE No. 71.

Mortality from Scarlatina from 1884 *to* 1893 *inclusive.*

YEARS.	Deaths.	Percentages of deaths to deaths from all causes.	Death-rates per 10,000 living population.*
1884	52	.83	1.44
1885	53	.85	1.46
1886	21	.32	.57
1887	26	.40	.70
1888	34	.49	.91
1889	18	.26	.48
1890	16	.21	.42
1891	13	.18	.34
1892	27	.33	.71
1893	52	.67	1.35
Total	312	.....	.....
Average	31	.45	.84

* Population estimated for all but census years.

Table No. 71 shows the number of deaths from scarlet fever for the past ten years. It will be seen that for several years there was a steady diminution in the mortality from this disease down to and including 1891, since which time the mortality has increased, and largely during the past year.

TABLE No. 72.

Mortality from Scarlatina from 1884 *to* 1893, *inclusive, by Ages.*

YEARS.	Under 1.	1 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Unknown.	Total.
1884.....	7	20	12	8	1	4	....	....	....	....	....	....	....	52
1885.....	5	30	11	4	1	1	1	....	....	....	....	....	....	53
1886.....	1	8	9	1	....	1	....	....	....	....	....	....	1	21
1887.....	5	10	3	6	....	2	....	....	....	....	....	....	....	26
1888.....	5	16	5	3	2	....	1	1	....	1	....	....	....	34
1889.....	4	7	3	2	1	....	....	....	....	....	....	....	1	18
1890.....	2	10	1	1	....	2	....	....	....	....	....	....	....	16
1891.....	1	7	4	1	....	....	....	....	....	....	....	....	....	13
1892.....	2	12	10	2	....	1	....	....	....	....	....	....	....	27
1893.....	2	25	16	1	1	4	1	1	....	....	....	....	1	52

TABLE No. 73.

Deaths from Scarlatina by Counties, 1893.

COUNTIES.	Deaths.	COUNTIES.	Deaths.
Rockingham.....	3	Hillsborough.....	9
Strafford.....	5	Cheshire.....	1
Belknap.....	11	Sullivan.....	2
Carroll.....	5	Grafton.....	13
Merrimack.....	1	Coös.....	2

MEASLES.

TABLE No. 74.

Mortality from Measles from 1884 *to* 1893, *inclusive.*

YEARS.	Deaths.	Percentages of deaths to deaths from all causes.	Death-rate per 10,000 living population.*
1884	3	.04	.08
1885	45	.72	1.24
1886	18	.28	.49
1887	39	.60	1.06
1888	55	.80	1.48
1889	16	.23	.42
1890	9	.12	.23
1891	19	.26	.50
1892	24	.30	.62
1893	32	.41	.83
Total	260	.....	.....
Average	26	.38	.69

* Population estimated for all but census years.

Table No. 74 shows the mortality from measles for the ten years included in the table. The number of deaths returned from this disease in 1893 was 32, an increase over the last four years, and greater than has been returned since 1888.

TABLE 75.

Mortality from Measles from 1884 *to* 1893, *inclusive, by Ages.*

YEARS.	Under 1.	1 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Unknown.	Total.
1884.....	1	1	....	....	1	....	....	....	....	....	....	....	....	3
1885.....	12	26	5	1	1	....	....	....	....	....	....	....	....	45
1886.....	5	13	....	....	....	....	....	....	....	....	....	....	..	18
1887.....	19	10	2	1	3	....	2	1	....	1	....	....	....	39
1888.....	14	20	6	3	2	2	5	1	1	....	....	1	....	55
1889.....	2	6	1	....	2	2	1	....	1	....	....	....	1	16
1890.....	5	4	....	....	....	....	....	....	....	....	....	....	....	9
1891.....	5	6	2	....	2	....	1	1	....	1	....	....	1	19
1892.....	7	11	....	1	1	3	....	....	1	....	....	....	....	24
1893.....	9	14	3	2	1	1	1	....	....	....	1	....	....	32

Table No. 75 gives the mortality from measles for the ten years included by age periods. It will be seen by this table that this is a disease chiefly of early life. It is also demonstrated by this table that the disease is of too great importance to be ignored so far as restrictive measures are concerned by local boards of health and the public.

NOTE ON STILLBIRTHS.

Under the law a stillbirth should be returned as a *birth* and also as a *death*. In the birth returns for 1893 429 stillbirths were reported, while in the death returns only 203 were recorded. This accounts for the difference in the stillbirth statistics of Tables No. VII and VIII, and Tables No. XV and XX, the two former being the more reliable.

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Bird's-eye View of New Hampshire College Buildings.

TWENTY-SECOND REPORT

OF THE

BOARD OF TRUSTEES

OF THE

NEW HAMPSHIRE COLLEGE

OF

AGRICULTURE AND THE MECHANIC ARTS

TO THE

NEW HAMPSHIRE LEGISLATURE

November 1, 1894

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REPORT OF THE TRUSTEES

DURHAM, N. H., November 1, 1894.

To the Honorable Senate and House of Representatives:

The Trustees of the New Hampshire College of Agriculture and the Mechanic Arts respectfully submit this their twenty-second annual report.

The year covered by the report, the first year of the independent existence of the college, fully demonstrates, in our judgment, the wisdom of the act of April 10, 1891, removing the college from Hanover to Durham. Notwithstanding the difficulties involved in so serious an undertaking as that of moving an institution bodily from one place to another, the college has been enabled to take a position of greater dignity and wider usefulness than ever before. The number of students has greatly increased, although many of the former students, residing in or near Hanover, severed their connection with the institution. The enrollment this year, including the names of the students in the Summer School and the Non-resident Course in Agriculture, is more than double that of last year. Aside from these two departments, the students number ninety-three; the largest number, by far, ever attending the college.

This gain has not been at the expense of the standard of scholarship. The class entering this year is, upon the whole, better prepared than was the class last year. There has been some apparent misapprehension as to the standard to be maintained. It is not necessary, here, to indicate the influences which tend to foster the error, but it may be said that the character of the students admitted, as well as the unalterable purpose of this Board, is sufficient guaranty that there shall be, not a yielding of the present standard, but as rapid an advance there-

from as may be possible. There is no question of competition involved. But there is a manifest duty, to see to it that the parents who intrust their children to this college shall not find that their sons and daughters, after spending four years here, are incompetent to stand upon level ground with the graduates of other scientific and technical institutions. There has not been at any time during the year, an attempt, or a desire, to introduce the classic studies into this college course. But the attempt has been made to give the students as thorough discipline, and as much genuine development, as they could have had at any other college. And this attempt has not been altogether unsuccessful.

It may not be generally understood that an institution like this is subject to peculiar demands. The elective system, which is with us a matter not of preference but of necessity, calls for a relatively large number of instructors. With a smaller number of students it is necessary for each instructor to conduct a large number of classes, although he may not have more than one student or two in a class. With a much larger number of students the expense would not necessarily be correspondingly increased; because it would be possible, though never altogether expedient, to secure tutors who could conduct many of the classes in the lower grades. The fact may be illustrated in this way. Our catalogue provides for more than four thousand exercises, an exercise being an hour spent by an instructor with a class. The ordinary requirement is that each student shall "take" sixteen exercises each week. But sixteen exercises a week, for thirty-five weeks, (the college year) amounts to five hundred and sixty exercises; or, two thousand, two hundred and forty exercises for four years. The difference between four thousand, and two thousand two hundred and forty, represents the extra demands made by the system of electives. And, as a matter of fact, there is demanded of our instructors nearly twice as much routine work as should be expected of them.

The Summer School of Biology attracted fifteen students, most of them teachers in our public schools. The botanical department was under the direction of Principal Charles H.

Clark of Kingston, an expert botanist and microscopist. The zoölogical department was under the direction of Professor Clarence M. Weed. The enthusiasm manifested by the students, and their voluntary expression of approval, have been evidence of the success of this experiment. The expense of the school was somewhat larger than the income, but the discrepancy was less than in any other department of our college work.

The Non-resident Course in Agriculture, as the catalogue shows, has enrolled fifty students, from all parts of the country. The correspondence has been carried on by the secretary of the faculty, with the coöperation of all the members, particularly those directly interested in Agriculture. This work has not entailed any extra expense hitherto, but if it continues to develop at the present rate some special provision will have to be made for it. The eager response seems to indicate that if this is not an untried field, it is at least a field which has not been thoroughly cultivated elsewhere. Circular 3, issued February, 1894, contained the following statement:

The methods of the course are briefly as follows:

"1. It will be free to all, with no entrance examination or fee. The student may begin at any time; and the privileges of the course are not limited to the residents of New Hampshire.

"2. Students are offered the option of working for a certificate or not, as they see fit, but they are strongly urged to do the former. Those so working will, as studies are finished, send in answers to sets of examination questions; those not so working will submit a statement that the requisite reading has heen carefully done.

"3. Each of the books and pamphlets will be estimated at a certain number of exercises, an exercise probably averaging ten pages of reading-matter.

"4. The satisfactory completion of 600 exercises will entitle the student to a certificate. It is probable that under ordinary conditions this will require about two years.

"5. Each student working for a certificate will be required to take certain general studies, such as Soils, Tillage, Noxious Insects, Fungous Diseases, Meteorology, Laws of Plant Growth, Farm and Household Chemistry, Fertilizers, etc., and to select

at least three lines of study from the following or similar subjects :

Dairying,	Field Crops,	Vegetables,
Stock-feeding,	Forestry,	Floriculture,
Stock-breeding,	Orchard Fruits,	Plant Propagation,
Poultry-keeping,	Small Fruits,	Road Construction.

"Students not working for a certificate may select any of the above subjects they desire, but it is recommended that they pursue the prescribed lines of general reading in connection with special subjects.

"6. The cost of books will not be great. So far as possible the college will arrange to furnish bulletins free, and books at lowest cost.

"It is expected that where several students live near together, the members of the faculty will be able to deliver lectures in person at occasional intervals, thus bringing the course into line with the university extension movement.

"The coöperation of granges, farmers' clubs, village improvement societies, and other organizations is earnestly desired."

The "University Extension" movement, which has been gaining ground in this country during the last few years, provides for nearly everything except agriculture. Our purpose is to supply this lack, so far as it may be possible for us to do so. To carry out the plan to our own satisfaction, and in such a way as would most help the farmers of the state, we would need to have instructors so situated that they could devote a large part of their time to giving lectures in different parts of the state. Probably the time has not yet come to present this matter to your honorable bodies for action. The ground is partly covered by the Board of Agriculture. It is for the farmers themselves to say whether or not they wish this work to be taken up by the college, and if they do so desire, when and to what extent. For the present we must depend upon correspondence for prosecuting the work we have begun, save where the farmers in the immediate vicinity are concerned. Lectures have been given in Newington, Lee, Stratham, Rollinsford.

Early in the year it was decided to introduce another course

in Agriculture for the benefit of the farmers of the state: viz., one which would enable them to gain some of the benefits of the college at as slight an expense as possible. A course of eighty-one lectures, including six lectures on Diseases of Farm Animals by Austin Peters, D. V. S., of Boston, four lectures on Domestic Economy and Farm Sanitation by Mrs. Ellen H. Richards of the Mass. Institute of Technology, Boston; lectures on Gardening by Benjamin P. Ware of Clinton, Mass.; lectures on Poultry Raising by I. K. Felch of Natick, Mass.; and upon the Weather Service by J. Warren Smith, forecast officer, of Boston. There were given, also, four lectures on Forestry by the N. H. Forestry Commission, lectures on Raw Materials used in Fertilizers by W. H. Bowker of Boston, and sixty lectures by members of the college faculty. An extract from the bulletin announcing this course will explain its purpose.

"This course of lectures is, first of all, strictly technical, dealing only with such subjects as relate directly to the practical every-day work of the farmer. Secondly, it is condensed as much as possible to meet the requirements of those who are actively engaged in farming, and who cannot well spend more than three or four weeks away from home. Thirdly, while every possible effort has been made to deal with practical subjects in a practical way, at the same time it is hoped that the student will obtain a sufficient understanding of the more general laws which underlie farm operations, so that he may carry his study and investigation still further at his home."

The Department of Mechanic Arts has thus far been able to meet the demands made upon it by the comparatively large number of students electing its courses, and also to give instruction to the freshmen in the courses in Agriculture. The greater part of the instruction thus given has been of an elementary nature, the upper-class men, prepared for more advanced work, being very few in number. During the next two years the demands upon the department will be very greatly increased, and the deficiencies in material equipment will be more decidedly felt, as the present large classes progress in their college work; and the need of an increase in the number of instructors will also be made manifest.

While efficient instructors are without doubt the first requisite, the material equipment of the shops and laboratories cannot be said to be of secondary importance. The mechanic and the engineer may be developed without the direct aid of an instructor, but not without long and intimate acquaintance with machinery.

Of the four trades in which elementary instruction has thus far been projected, only two are partially provided for; the machine shop and wood shop are fairly well equipped with small tools, and some machinery; the forge shop and the foundry are practically without equipment. By the present curriculum, the shop-work of students in the engineering courses extends through the four years of the course; this time is now necessarily divided between the wood shop and the machine shop.

There is little provision for mechanical laboratory work, only one testing machine being available; that one having been built in the college shops. The machinery of the heating and power station would be available for testing purposes with a small expenditure for testing apparatus and standardizing instruments.

The need for the rooms originally planned for the north end of the shop building (but not built), has already been felt. There is now no room in the college suitable for classes in drawing, and especially for classes in freehand drawing; the need for which would be supplied if the drawing room could be built as originally planned, with some modifications.

A stock house has also become needful. The department necessarily carries a large variety of material in stock,—not only for use in shop-work instruction, but also for maintenance and repairs of the college buildings and apparatus in general. These materials,—lumber, iron, nails, bolts, screws, gas and water pipe and fittings, etc., could be better cared for in a separate building adjacent to the shops, than in the various rooms where they are now placed. Such a building would also provide a room for the hose cart, now stored in the basement of the Experiment Station; and the central location of this part of the fire protective apparatus is a strong necessity.

The most urgent needs of the department may be listed as follows :—

Stock house.
North rooms of original plan for shops.
Curtains for windows of shops.
Foundry equipment.
Forge shop equipment.
Brick floor for forge room.
Machinery for wood shop.
Machinery for machine shop.
Testing machinery.
Test apparatus and standardizing instruments.
Blue-printing room equipment.
Office furniture.
Kinematic models.
Reading room furniture.
Books.
Drawing models.
Drawing tables.
Collection of ores and samples of metals, etc., etc.

We estimate that the sum of $40,000.00 (forty thousand dollars) would place the department on a satisfactory working basis. The present equipment (by the inventory of July 1st, 1894) is placed at less than $5,400.00. The sum $40,000.00 estimated above is not a large one for the purpose; several engineering colleges in this country have single pieces of apparatus approximating or exceeding in cost the entire amount represented by the buildings and equipment of this department.

Nineteen girls are registered as students. It becomes necessary for us again to call the attention of your honorable bodies to the fact that no special provision has been made for them. If such provision could be made at an early date it would undoubtedly appeal to a large number of girls in our state who are uncertain what to do. There should be a building, specially designed for the purpose, accommodating not less than forty girls, provided with conveniences for study and demonstration in the various branches of domestic economy, and placed under the care of a competent matron. Facts at large compel us to urge this need upon your honorable consideration. While the

girls' colleges are all overcrowded, there are also some indications of a reaction against the widespread feeling which has demanded the same education for both sexes. The possible evils attending the exacting requirements of the best girls' colleges, together with the restlessness and discontent following the close of the college years, fairly raise the question whether or not the classical curriculum does satisfactorily solve the problem of the higher education for women. So long as there is no other "higher education," the problem will hardly get a fair statement, much less a solution. For the modified revival of the "finishing school" is, at most, but a recognition of the problem, not a solution of it. It is absurd to say that the classical education necessarily unfits girls for domestic life. The atmosphere of a college, however, is not domestic, and in ways both direct and indirect the domestic opportunity of the college girl is limited more often than is commonly admitted. There are some to whom this will not seem an evil. It would be an evil if this class should be indefinitely enlarged, as it seems likely to be.

The study of applied domestic science, a study as yet in its infancy, does offer at least a partial solution of the problem, not simply by the things it teaches, but even more by the atmosphere it tends to maintain. This board has no desire to place girls "upon the same footing with boys." It would, if it could, relieve some of the excessive tension, which in the preparatory schools, and most of all in the best of them, makes good scholarship a dangerous thing. But this board does desire to give the girls of the state an opportunity for culture and development as great as that afforded their brothers, and at the same time send them forth, womanly not mannish, fit for the positions they may occupy and the activities to which they may be called. To this matter we urge your earnest attention.

In the matter of physical culture we have little to report. A field has been levelled and put in condition for use by the students. It is unfortunate that physical culture in the college should be so intimately associated, in the public thought, with a few athletic sports, and thus made subject to the natural condemnation visited upon all excesses. Undoubtedly there is often too much stress placed upon athletic sports, and too much

time and energy devoted to them. It should be remembered, however, that even the excesses have indirectly been of use in stimulating many students to rational physical exercise. Recent reports from at least one college indicate some of the possible advantages which may attend a systematic treatment of this matter. A gymnasium is not simply a place where a few students may be prepared to play a winning game of base-ball or foot-ball or to row a race. It is a place where all the students may receive that development of the body without which the best development of the mind is impossible. And if the gymnasium be under the care of a competent medical director, it may correct many evils and prevent more. Every student ought to be examined at least twice each year, by some one specially qualified for the task, and then required to work regularly, systematically, and under careful and constant supervision. And, together with this, he should have also some other work, or some play, in which he may be interested. For a gymnasium with its systematic exercises, can never altogether take the place of the field. It must always lack the element of spontaneous effort, engendered by competitive trial ; and also the subtile influence of clear sunlight and the outer air. For the out-door exercise we have made what provision was possible. And the military drill, with the "setting-up exercises," will enable us to supplement, during part of the year, the spontaneous effort of the students. But we have no place where even the military drill can profitably be carried on during the winter months, or where the student may, during the same time, exercise systematically under proper supervision. For this we need a gymnasium. And we commend this matter also to your earnest consideration.

Passing reference has been made to military drill. Lieutenant Henry C. Hodges, Jr., of the 22d U. S. Infantry, was detailed for service here, and reported for orders September 1st, 1894. Under his instruction work was begun at once. All of the boys not excused for disability are required to take this drill, amounting at present to one half hour daily, and consisting largely of exercises for the development of the body and for securing an erect and military carriage. The short experience has satisfied this Board that it was extremely fortunate in securing the services of

so thorough a soldier, and so competent an instructor, as Lieutenant Hodges.

Perhaps there is no department of the college so deficient as that of the library. In calling this to your attention we can hardly hope that anything can be done to place the library in a fit condition. The whole income of the college could easily be expended in the purchase of books, and of books almost absolutely necessary. If it is not possible for the state to appropriate such sums as might properly equip this most essential part of the college, may we not hope by some private benefactions our students may be supplied with the best reading? While the excellent library at Dartmouth was accessible the lack was not so sorely felt. Thrown upon our own resources, we feel the poverty. A generous endowment of the library would constitute a memorial as lasting as the lives of successive generations of students, and would exert an influence as widespread as the reach of their activities.

B. F. Prescott,
For the Trustees.

TREASURER'S REPORT

To the president and trustees of the New Hampshire College of Agriculture and the Mechanic Arts;—Your treasurer respectfully submits his twenty-eighth annual report, for the year ending July 1, 1894. He charges himself as follows:

Balance in treasury July 1, 1893	$4,245.42	
Income from Conant fund	3,889.90	
Interest from New Hampshire bonds	4,800.00	
Annual state appropriation	3,000.00	
Special state appropriation	35,000.00	
Annual government appropriation	15,000.00	
Special government appropriation	19,000.00	
Scholarships	1,800.00	
Balance received from Prof. Pettee	1,146.13	
Lot sold to A. H. Wood	250.00	
Rent	8.00	
College farm	1,128.22	
Other items	230.39	
Interest Merrimack River Savings Bank	1,090.50	
		$90,588.56

He credits himself as follows:

1893.		
July 21.	Order C. S. Murkland, pres't	$1,733.05
21.	" " "	1,057.41
22.	" " "	5,000.00
24.	" " "	344.53
Aug. 2.	" " "	96.33
2.	" " "	1,086.23
2.	" " "	3,702.99
7.	" " "	1,819.85
15.	" " "	2,322.00
15.	" " "	7,410.20
15.	" " "	399.22
24.	" " "	1,102.35
Sept. 6.	" " "	914.65
6.	" " "	1,435.75
26.	" " "	463.16
26.	" " "	1,649.65

1893.		
Sept 26.	Order C. S. Murkland, pres't	$206.72
26.	" " "	1,506.03
26.	" " "	751.33
Oct. 11.	" " "	4,595.22
11.	" " "	1,710.64
Nov. 9.	" " "	1,415.87
9.	" " "	1,335.99
16.	" " "	1,709.13
16.	" " "	2,015.25
16.	" " "	1,699.94
20.	" " "	531.29
20.	" " "	935.44
20.	" " "	28.00
23.	" " "	1,522.41
24.	" " "	1,343.65
Dec. 4.	" " "	1,428.26
7.	" " "	1,866.35
7.	" " "	400.09
26.	" " "	223.32
26.	" " "	1,003.30
26.	" " "	777.43
26.	" " "	760.80
26.	" " "	36.57
26.	" " "	94.10
26.	" " "	399.00
26.	" " "	66.00
26.	" " "	2,000.00
1894.		
Jan. 9.	" " "	576.22
9.	" " "	2,320.08
9.	" " "	707.66
9.	" " "	644.95
9.	" " "	1,800.00
12.	" " "	400.45
Feb. 24.	" " "	289.64
24.	" " "	891.37
24.	" " "	1,100.00
24.	" " "	2,075.01

1894.		
Feb. 24.	Order C. S. Murkland, pres't	$60.65
24.	" " "	609.52
24.	" " "	1,124.62
24.	" " "	435.07
24.	" " "	1,124.10
Mar. 19.	" " "	203.86
19.	" " "	1,963.55
19.	" " "	905.21
20.	" " "	339.72
20.	" " "	532.76
Apr. 24.	" " "	1,918.46
24.	" " "	744.98
24.	" " "	1,059.80
May 10.	" " "	1,809.66
10.	" " "	1,268.68
10.	" " "	634.29
31.	" " "	486.00
31.	" " "	1,114.74
Balance in bank		2,548.01
		$90,588.56

FREDERICK SMYTH,
Treasurer.

We have examined the foregoing accounts, and find the same correct and properly vouched, leaving in the hands of the treasurer, Frederick Smyth, July 1, 1894, the sum of $2,548.01.

(Signed) CHAS. S. MURKLAND.
ALBERT DEMERITT.
JOHN G. TALLANT.

TREASURER'S GOVERNMENT REPORT

Name of Institution, NEW HAMPSHIRE COLLEGE OF AGRICULTURE AND THE MECHANIC ARTS.

Post-office, DURHAM; *State*, NEW HAMPSHIRE.

Report of Treasurer of said institution, to the Secretary of Agriculture and the Secretary of the Interior, of amount received under act of congress of August 30, 1890, in aid of colleges of agriculture and the mechanic arts, and of the disbursements thereof, to and including June 30, 1894.

	Receipts.	Disbursements.
Balance on hand July 1, 1893	$2,049.26	
Received from the United States government	19,000.00	
Disbursed for instruction and facilities:		
In agriculture, as per schedule A		$933.46
In mechanic arts, as per schedule B		5,047.59
In English language, as per schedule C		4,102.28
In mathematical science, as per schedule D		1,606.44
In natural and physical sciences, as per schedules E–E		7,347.25
In economic science, as per schedule F		1,752.50
Balance remaining unexpended		259.74
	$21,049.26	$21,049.26

I hereby certify that the above account is correct and true, and, together with the schedules hereunto attached, truly represents the details of expenditures for the period and by the institution named, and that said expenditures were only to instruction in agriculture, the mechanic arts, the English language, and

the various branches of mathematical, physical, natural, and economic science, with special reference to their application in the industries of life and to the facilities for such instruction, according to my best knowledge and belief.

FREDERICK SMYTH,
Treasurer.

SCHEDULE A.—*Disbursements for instruction in Agriculture, and for facilities for such instruction, during the year ended June 30, 1894.*

I. For instruction, viz.:	
For the salary of (1) Professor of Agriculture . .	$154.80
For the salary of (2) Professor of Agricultural Chemistry	236.00
II. For facilities, as follows:	
For apparatus	534.91
For stock and material	7.75
Total	$933.46

SCHEDULE B.—*Disbursements for instruction in Mechanic Arts, and for facilities for such instruction, during the year ended June 30, 1894.*

I. For instruction, viz.:	
For the salaries of (1) Professor of Mechanical Engineering, $1,666.66; (2) Instructor in Machine Work, $833.31; (3) Instructor in Wood Work, $833.31; (4) Instructor in Drawing, $411.50 .	$3,744.78
II. For facilities, as follows:	
1. For apparatus	274.60
2. For machinery	298.48
3. For text-books and reference books . . .	64.37
4. For stock and material	665.36
Total	$5,047.59

SCHEDULE C.—*Disbursements for instruction in English Language, and for facilities for such instruction, during the year ended June 30, 1894.*

I. For instruction, viz.:	
For the salaries of (1) Instructor in English Language, $1,250.00; (2) Instructor in Rhetoric, $2,670.30	$3,920.30
II. For facilities, as follows:	
For text-books and reference books	181.98
Total	$4,102.28

SCHEDULE D.—*Disbursements for instruction in Mathematical Science, and for facilities for such instruction, during the year ended June 30, 1894.*

I. For instruction, viz.:	
For the salary of Professor of Mathematics	$1,583.34
II. For facilities, as follows:	
1. For apparatus	19.00
2. For text-books and reference books	4.10
Total	$1,606.44

SCHEDULE E.—*Disbursements for instruction in Physical Science, and for facilities for such instruction, during the year ended June 30, 1894.*

I. For instruction, viz.:	
For the salaries of (1) Instructor in Physics, $1,250.00; (2) Professor of Chemistry, $1,666.66	$2,916.66
II. For facilities, as follows:	
1. Apparatus	1,290.78
For text-books and reference books	31.41
For stock and material	1,132.29
Total	$5,371.14

SCHEDULE E (2).—*Disbursements for instruction in Natural Science, and for facilities for such instruction, during the year ended June 30, 1894.*

I. For instruction, viz.:	
For salary of Professor of Entomolgy and Zoölogy .	$1,666.66
II. For facilities, as follows:	
1. For apparatus	143.51
2. For text-books and reference books . . .	59.94
For stock and material	106.00
Total	$1,976.11

SCHEDULE F.—*Disbursements for instruction in Economic Science, and for facilities for such instruction, during the year ended June 30, 1894.*

I. For instruction, viz.:	
For Professor of Economic Science and History .	$1,666.66
II. For facilities, as follows:	
For text-books and reference books . . .	85.84
Total	$1,752.50

FUND STATEMENT

CONANT FUND.

Balance June 30, 1893 .	$698.37		
Income	3,889.90		
Total receipts		$4,588.27	
Scholarship payments		2,870.00	
Balance June 30, 1894			$1,718.27

College Farm Fund.

Balance June 30, 1893	$1,128.72	
Farm earnings	1,128.22	
Total receipts		$2,256.94
Total payments		2,256.94

1862 Government Fund.

Balance June 30, 1893	$237.79	
Income	4,800.00	
Total receipts		$5,037.79
Total payments		5,037.79

Experiment Station Fund.

Total receipts	$15,000.00	$15,000.00
Payments, permanent improvements	$532.52	
Payments running expenses	14,467.48	
		15,000.00

1890 Government Fund.

Balance June 30, 1893	$2,049.26		
Income	19,000.00		
Total receipts		$21,049.26	
Total payments		20,789.52	
Balance June 30, 1894			$259.74

State Annual Appropriation.

Total receipts	$3,000.00
Total payments	3,000.00

STATE SPECIAL APPROPRIATION.

Total receipts	$35,000.00	
Total payments	35,000.00	

CULVER HALL SALE, $15,000.00.

Balance of amount due . . .	$1,398.41	
Total payments	809.41	
		$589.00
		$2,567.01

INCIDENTAL FUNDS.

Tuition	$1,800.00	
Income from sale of property to A. H. Wood, Durham .	250.00	
Rent	8.00	
Incidental items . . .	109.39	
Interest Merrimack Savings Bank	1,090.56	
Total receipts	$3,257.95	
Total payments	3,257.95	
Cash in hands of treasurer June 30, 1894	$2,548.01	
Outstanding bills due college . . .	19.00	
		$2,567.01

REPORT OF THE PRESIDENT

Financial Transactions from June 30, 1893, to June 30, 1894.

GROSS RECEIPTS.

Rec'd from Frederick Smyth, treasurer .	$88,040.55	
Bills due account, 1894. . . .	938.04	
		$88,978.59

GROSS PAYMENTS.

Outstanding bills, 1894	$214.08
College farm	380.95
Construction account	34,971.60
Experiment station	15,000.00
Instruction	16,920.32
Stock and material	4,910.34
Miscellaneous payments	16,581.30
	$88,978.59

We have examined this report, and find it correctly cast and properly vouched for.

CHAS. S. MURKLAND.
ALBERT DEMERITT.
JOHN G. TALLANT.

Detailed Statement.

RECEIPTS.

Rec'd from Frederick Smyth, treasurer	$88,040.55	
Bills due account, 1894	938.04	
		$88,978.59

PAYMENTS.

Outstanding bills, 1894		$214.08
Experiment station, general expenses	$14,467.48	
Experiment station, permanent improvements	532.52	
		15,000.00
College farm		380.95
Instruction:		
Mechanic arts	$3,333.27	
Chemistry	1,666.66	
Natural science	1,666.66	
Mathematics	1,583.34	
History and economic science	1,666.66	
Physics	1,250.00	

Modern language	$1,375.00	
Agriculture	422.78	
English language	3,544.45	
Drawing	411.50	
Total instruction		$16,920.32
Mechanic arts apparatus	$195.39	
" machinery	298.48	
" books	64.37	
" stock	586.15	
Total		1,144.39
Chemical science apparatus	$678.79	
" stock	1,048.70	
" books	17.91	
Total		1,745.40
Natural science apparatus	$143.51	
" stock	17.20	
" books	59.94	
Total		220.65
Mathematics apparatus	$19.00	
" books	4.10	
Total		23.10
History and economic science books	$63.67	
" " stock	22.17	
Total		85.84
Physics apparatus	$611.99	
" stock	83.39	
" books	13.50	
Total		708.88
Modern language books	$25.62	
" stock	10.14	
Total		35.76

Agricultural apparatus	$534.91	
" stock	96.55	
Total		$631.46
English language books	$95.55	
" apparatus	60.81	
Total		156.36
Drawing apparatus	$79.29	
" stock	79.21	
Total		158.50
Construction account:		
Thompson hall	$3,798.63	
Conant hall	2,873.19	
General	23,394.02	
Work-shops	148.31	
Library	605.13	
Thompson house	1,166.06	
Athletic field	100.00	
Experiment station, rooms	291.27	
Creamery building	1,466.30	
Creamery, rooms	235.14	
Nesmith hall	559.70	
Experiment station, barn	333.85	
Total		34,971.60
Power and Service Department:		
Installation	$3,170.69	
Stock and supplies	2,378.33	
Repairs	43.26	
Tools	29.46	
Water-works	1,230.26	
Labor	1,900.98	
Total		8,752.98

Curator's labor	$532.13	
" stock	69.91	
" repairs	2.70	
Total		$604.74
Conant scholarships		977.00
State scholarships		1,800.00
Insurance		240.00
Trustees' expenses		1,375.60
Interest to Dartmouth college		600.00
Chapel expenses		77.71
Clerical work		246.25
Freight and express charges		316.57
Commencement exercises		190.65
College seal		50.00
Association agricultural colleges		15.00
Dedication expenses		403.41
Printing and stationery		228.46
Repairs		43.25
Travelling expenses		330.20
Incidentals		329.48
Total		$88,978.59

REPORT OF THE SPECIAL COMMITTEE OF THE TRUSTEES OF THE NEW HAMPSHIRE COLLEGE OF AGRICULTURE AND THE MECHANIC ARTS

To His Excellency the Governor:

By the act of legislature approved April 1, 1893, the sum of $35,000 was appropriated "for completing and furnishing the buildings of the New Hampshire College of Agriculture and the Mechanic Arts, in Durham, and for other purposes of said college."

The said act further provided as follows: "The trustees shall elect three of their board, who shall have the sole control of expending the appropriation, and shall complete the buildings and grade the grounds for which this appropriation is made, and shall make a detailed report of their expenditures to the governor, which report shall be published."

In accordance with the provisions of this act, and at a regular meeting of the trustees, held April 18, 1893, Lyman D. Stevens, Warren Brown, and Charles McDaniel were duly elected members of the committee to have control of the expenditures under this appropriation.

On the 19th day of July, 1893, Lyman D. Stevens having retired from the board of trustees, the vacancy thus created in this committee was filled by the election of Charles S. Murkland. And on the 11th day of October, 1893, Warren Brown having retired from the board of trustees, the vacancy thus created in this committee was filled by the election of Edward Woods. The committee now consists of Charles McDaniel, Charles S. Murkland, and Edward Woods.

The entire sum of $35,000 having been expended, this committee respectfully submits its report, with detailed schedule of its expenditures. All bills paid from that appropriation were approved by the members of this committee before payment, and the signatures will be found upon the vouchers.

Payments were made as follows:

Dow & Randlet	$3,500.00
" "	3,500.00
" "	2,000.00
" "	1,500.00
" "	1,100.00
" "	435.07
Lewis Killam	4,164.61
" "	1,000.00
" "	148.15
" "	130.39
" "	43.43
" "	18.93
Dartmouth College	600.00
" "	200.00
Radford Pipe Co.	1,364.80
C. W. Truell	600.00
" "	501.25
" "	300.00
Truell & Rowe	553.01
" "	786.91
" "	87.00
Manchester Heating and Lighting Co.	1,002.00
" " " "	240.00
Lee Brothers	1,466.68
" "	745.86
" "	435.38
" "	32.79
Gilbert & Barker	615.00
Freight and express	628.01
L. C. Clark & Co.	683.50
" "	149.19
" "	49.00
" "	28.58
" "	30.39
Brown Brothers	270.66
" "	224.52
" "	196.73

Brown Brothers	$109.70
" "	101.14
" "	32.86
" "	24.00
Meneely & Co.	300.00
Franklin Educational Co.	343.83
" "	651.55
" "	24.70
" "	24.53
" "	8.76
J. Albert Walker	201.53
" "	178.41
" "	162.23
" "	88.73
" "	81.56
" "	55.09
Richards & Co.	271.34
" "	42.50
" "	6.00
E. L. Emerson	290.43
" "	193.00
J. L. Perkins	119.70
" "	18.00
" "	15.75
" "	15.00
J. M. Stewarts' Sons	287.00
L. H. Josselyn & Co.	277.25
Converse & Hammond	213.00
D. Foss & Son	201.76
National Electric Co.	200.00
J. E. Symonds & Co.	197.50
N. J. Furniture Co.	180.00
Boston Lead Manufacturing Co.	134.97
J. M. Greene	132.06
W. A. Snow & Co.	132.00
Pinkham & Co.	130.05
" "	40.00
J. B. Folsom & Co.	113.26
E. Morrill Furniture Co.	53.00

Joseph Breck & Sons	$6.70
J. W. Burnham	4.00
F. J. Bunker	1.75
Franklin Educational Co.	1.30
William Jenkins	1.22
H. R. Worthington & Co.	1.00
	$35,000.00

We, the executive committee appointed by the trustees of the New Hampshire College of Agriculture and the Mechanic Arts to expend the appropriation of $35,000, under the provisions of the act of legislature approved April 1, 1893, as indicated above, do hereby certify, for ourselves and for our predecessors in this office, that we have faithfully attended to the duties devolved upon us, personally supervising all contracts and expenditures made under the said appropriation; that the whole sum of $35,000 has been expended, and that the foregoing report is a true record of the expenditures thus made.

And we respectfully request that you will examine this report, and, if you find it satisfactory, that you will approve it and return two of the three copies hereby forwarded to you, with your endorsement, one copy to be filed with the records of the college and one copy to be forwarded to the state printer, for publication, as required by law.

Respectfully submitted:

CHAS. MCDANIEL,
CHAS. S. MURKLAND,
EDWARD WOODS,
Committee.

Durham, April 1, 1894.

Approved:

JOHN B. SMITH,
Governor.

CATALOGUE

CATALOGUE

OF THE

NEW HAMPSHIRE COLLEGE OF AGRICULTURE AND THE MECHANIC ARTS

1894–1895

At the session of the legislature of New Hampshire in 1866, an act was passed establishing the "New Hampshire College of Agriculture and the Mechanic Arts" on the basis of the congressional land grant, and authorizing its location in Hanover and connection with Dartmouth college.

In accordance with this act, the institution was organized under a board of trustees, appointed partly by the governor and council and partly by the corporation of Dartmouth college.

The act of congress, by virtue of which it was established, provides that its "leading objects shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts . . . in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life."

An act of congress, approved August 30, 1890, provides an additional appropriation, which for the current year is twenty thousand dollars, and which is to be increased until it becomes twenty-five thousand dollars a year. This money is to be applied "to instruction in Agriculture, the Mechanic Arts, the English Language, and the various branches of Mathematical, Physical, Natural, and Economic Science, with special reference to their applications in the industries of life, and to the facilities for such instruction."

At the session of the legislature of New Hampshire in 1891, acts were passed severing the connection with Dartmouth college and removing the New Hampshire college from Hanover to Durham; accepting the Benjamin Thompson estate, which was then of the value of about four hundred thousand dollars, and, accumulating at four per cent. compound interest, will be available as an endowment in 1910; and providing one hundred thousand dollars to be used with certain other sums in the erection of buildings.

At the session of the legislature of New Hampshire in 1893, an act was passed appropriating thirty-five thousand dollars for completing and furnishing the buildings. These buildings have been finished, furnished, and supplied with apparatus. The New Hampshire college has completed the first year of work in its new location.

The college is carrying out the provisions of the acts of congress, by giving a practical and scientific education, which is of use in all the professions and industrial pursuits, by means of the following courses of study:

1. Courses in Agriculture:
   - A. Technical Course.
   - B. Chemical "
   - C. Biological "
   - D. Institute "
   - E. Non-resident "
2. Courses in the Mechanic Arts:
   - A. Mechanical Engineering Course.
   - B. Electrical Engineering "
   - C. Technical Chemistry "
3. General Course.

FACULTY

CHARLES S. MURKLAND, A. M., PH. D., *President and Professor of English Language and Literature.*

CHARLES H. PETTEE, A. M., C. E., *Dean and Professor of Mathematics and Civil Engineering.*

CLARENCE W. SCOTT, A. M., *Professor of History and Political Economy.*

GEORGE H. WHITCHER, B. S., *Professor of Agriculture.*

ALBERT H. WOOD, B. S., *Associate Professor of Agriculture.*

FRED W. MORSE, B. S., *Professor of Organic Chemistry.*

CHARLES L. PARSONS, B. S., *Professor of General and Analytical Chemistry.*

CLARENCE M. WEED, D. SC., *Professor of Zoölogy and Entomology.*

ALBERT KINGSBURY, M. E., *Professor of Mechanical Engineering.*

HENRY C. HODGES, JR., FIRST LIEUTENANT, U. S. A., *Professor of Military Science.*

HERBERT H. LAMSON, M. D., *Instructor in Plant Diseases.*

GEORGE L. TEEPLE, M. E., *Instructor in Electrical Engineering and Physics.*

EDWIN B. DAVIS,* B. L., *Instructor in Modern Languages.*

JAMES HALL, *Instructor in Freehand Drawing.*

R. W. E. BASSETT, A. M., *Instructor in Modern Languages.*

CHARLES H. CLARK, A. M., *Instructor in Botany in the Summer School.*

JOHN N. BROWN, *Foreman of Machine Work.*

ALLEN G. LOWELL, *Foreman of Wood Work.*

EDWARD E. RUSSELL, *Engineer and Curator of Buildings.*

* Absent on leave.

STUDENTS

a—Agricultural Course; *c*—Course in Technical Chemistry; *m*—Mechanical Engineering Course; *g*—General Course.

SENIORS

Name.	Residence.	Room.
Adams, Frank Stanley *g*	*Gilsum.*	Nesmith Hall.
Britton, Frank Clifton *a* *	*Keene.*	Nesmith Hall.
Hill, Henry Elmer *g*	*Hanover.*	Thompson Hall.
Trow, Charles Arthur *m*	*Mt. Vernon.*	DeMeritt Hall.

JUNIORS

Kittredge, Lewis Harris *a*	*Keene.*	Hoitt House.
Wheeler, Delbert Amos *a*	*South Ashburnham, Mass.*	Prof. Scott's.
Hancock, Edward H. *m*	*Newton.*	Nesmith Hall.

SOPHOMORES

Barney, Harlan Winifred	*Grafton.*	Hoitt House.
Bartlett, Carrie Augusta *	*Lee.*	
Bartlett, Mary Blaisdell	*Epping.*	
Bartlett, David Burns	*Manchester.*	Prof. Scott's.
Berry, Walter Lincoln	*Lebanon.*	DeMeritt Hall.
Buck, Walter French	*Manchester.*	
Bunker, Mabel Eliza *	*Durham.*	Mr. J. J. Bunker's.
Chamberlin, Abby Florence	*Durham.*	Mr. Chamberlin's.
Chamberlin, George Hoitt *	*Durham.*	Mr. Chamberlin's.
Coe, John William	*South Newmarket.*	Mrs. Mathes's.
Colburn, Arthur Willard *	*Dracut, Mass.*	Nesmith Hall.
Comings, Carrie Lydia	*Durham.*	Mr. A. L. Comings's.
Comings, Mary Elizabeth	*Durham.*	Mr. A. L. Comings's.
Davis, Albert Herman *	*Durham.*	Mrs. A. L. Davis's.
Dennett, Irving Lyford	*Barnstead.*	Prof. Scott's.
Dockam, Charles Henry	*Newmarket.*	Newmarket.
Eastman, Eugene Bruce	*Portsmouth.*	Mr. C. Hoitt's.
Forristall, Elwin Henry	*Colebrook.*	Prof. Scott's.
Folsom, Emily Savage	*Dover.*	98 Silver St., Dover.
Foss, Fred Nathan	*Greenland.*	DeMeritt Hall.
Hayes, Leslie David	*Durham.*	Mr. Hayes's.

* Partial Course.

Name.	Residence.	Room.
Hunt, John Norton	*Peterborough.*	Mr. J. B. Nelson's.
Jenkins, Elery Dunbar	*Lee.*	Mr. J. E. Jenkins's.
Kenney, Lewis Hobart	*Pownal, Me.*	Prof. Wood's.
Mason, Woodruff	*Durham.*	Prof. Kingsbury's.
McKenna, George Thomas	*Exeter.*	Mr. Schoonmaker's.
Russell, William Fenno	*Lebanon.*	Mr. J. B. Nelson's.
Rand, Lewis Meader	*Newmarket.*	Newmarket.
Shaw, John Langdon Tallant	*North Chichester.*	Nesmith Hall.
Smith, Daniel Rundlett	*East Epping.*	Mr. C. Hoitt's.
Vickery, Charles William	*Dover.*	36 Summer St., Dover.
Whittemore, Everett Sydney	*Colebrook.*	Mr. J. B. Nelson's.
Wiggin, Tappan Sanborn	*Henniker.*	Creamery.
Young, Perley Arthur	*Newmarket.*	DeMeritt Hall.

FRESHMEN

Blodgett, Herbert Ralph	*Littleton.*	DeMeritt Hall.
Butterfield, Richard Cope	*Westmoreland.*	Mr. Chamberlin's.
Buzzell, Helen	*Lee.*	Lee.
Caverno, Bernice Elizabeth	*Lee.*	Lee.
Chamberlain, Henry Morse	*Marlboro, Mass.*	DeMeritt Hall.
Chase, Frank Rufus	*Epping.*	Thompson Hall.
Clarke, Frank Burnham	*Enfield.*	Creamery.
Coleman, James Albert	*Dover.*	Mr. Chamberlin's.
Corbett, Burton Albert	*Colebrook.*	Mr. J. B. Nelson's.
Chesley, Elizabeth Woodman	*Durham.*	Mr. J. S. Chesley's.
Chesley, Ivy May	*Durham.*	Mr. J. S. Chesley's.
DeMerritte, Frank	*Exeter.*	DeMeritt Hall.
Dudley, William Clark	*Marlboro, Mass.*	DeMeritt Hall.
Durgin, Alfred Caverly	*Lee.*	Lee.
Fielden, Henry Brown	*Newport.*	DeMeritt Hall.
Foord, James Alfred	*Walpole.*	Nesmith Hall.
Foss, Edna Ethel	*Durham.*	Mr. M. K. Foss's.
Fullerton, John William	*Somersworth.*	Somersworth.
Haley, John Myron	*Dover.*	123 Portland St., Dover.
Hayes, Mabel Lucy	*Durham.*	Mr. Hayes's.
Howe, Horace Leonard	*Hollis.*	DeMeritt Hall.
Ladd, Samuel Tilton	*Epping.*	Mr. Chamberlin's.
Maloney, James Patrick	*Franklin Falls.*	Mr. Schoonmaker's.
Mathes, Harry Clinton	*Durham.*	Mrs. Thompson's

Name.	Residence.	Room.
Meader, Alice Maude	*Newmarket.*	Newmarket.
Meader, Albert Eli	*Rochester.*	Hoitt House.
Moore, Herbert Fisher	*Penacook.*	DeMeritt Hall.
Morgan, Gerry Austin	*Milford.*	Mr. Chamberlin's.
Osborn, Ernest Sumner	*Rochester.*	Hoitt House.
Philbrick, John	*Seabrook.*	Mr. Chamberlin's.
Rice, Herbert Wood	*Henniker.*	
Richardson, Harry Putnam	*Milford.*	Mr. Chamberlin's.
Roberts, John Harry	*Rollinsford.*	
Sanborn, Fred Dexter,	*Ashland.*	DeMeritt Hall.
Shaw, Elijah Ray	*Nashua.*	
Shaw, Roscoe Hart	*Milton.*	DeMeritt Hall.
Simpson, Etta Lillian	*Durham.*	Mr. Simpson's.
Smart, Fannie Faustina	*Dover.*	Dover.
Smith, Cyrus Everett	*Hanover.*	
Smith, Fred Webster	*Franklin Falls.*	Mr. Schoonmaker's.
Snell, Edna Bernice	*Lee.*	Lee.
Straw, Edson Albert	*Pittsfield.*	Nesmith Hall.
Stevens, David Albert	*Durham.*	
Taft, DeForest Reed	*Winchester.*	DeMeritt Hall.
Thompson, George Winslow	*Epping.*	Mr. Hill's.
Tolles, Benjamin D.	*Somersworth.*	Somersworth.
Warner, Arthur Edward	*Riverside, R. I.*	DeMeritt Hall.
Watson, Frank Edwin	*Rock Bottom, Mass.*	Mr. Buzzell's.
Wiggin, Nellie Foss	*Lee.*	Lee.
Young, Rena Etta	*Newmarket.*	Mr. Hill's.

SPECIAL STUDENTS

Name.	Residence.	Subject.
Smith, Melvin Monroe	*Dover.*	Biology.
Smith, Jennie S.	*Newmarket.*	Biology.

SUMMER SCHOOL OF BIOLOGY

Name.	Residence.
Andrews, B. S.	*Manchester, New Hampshire.*
Coleman, Lydia Smith	*Newington, New Hampshire.*
Coleman, Dorothy	*Newington, New Hampshire.*
Folsom, Mabel A.	*West Epping, New Hampshire.*
Hacker, Emma L.	*Westbrook, Maine.*
Howe, Frederic W.	*Hollis, New Hampshire.*

Name.	Residence.
Kennedy, Nellie A.	*East Jefferson, Maine.*
Norton, William K.	*Milton, New Hampshire.*
Pease, Abbie A.	*South Newmarket, New Hampshire.*
Sanborn, Marion	*Kingston, New Hampshire.*
Sanborn, Grace	*Kingston, New Hampshire.*
Serex, Frederic	*Boston, Massachusetts.*
Thompson, Charlotte A.	*Durham, New Hampshire.*
Upton, Clara E.	*Nashua, New Hampshire.*
Young, Roxana P.	*Dover, New Hampshire.*

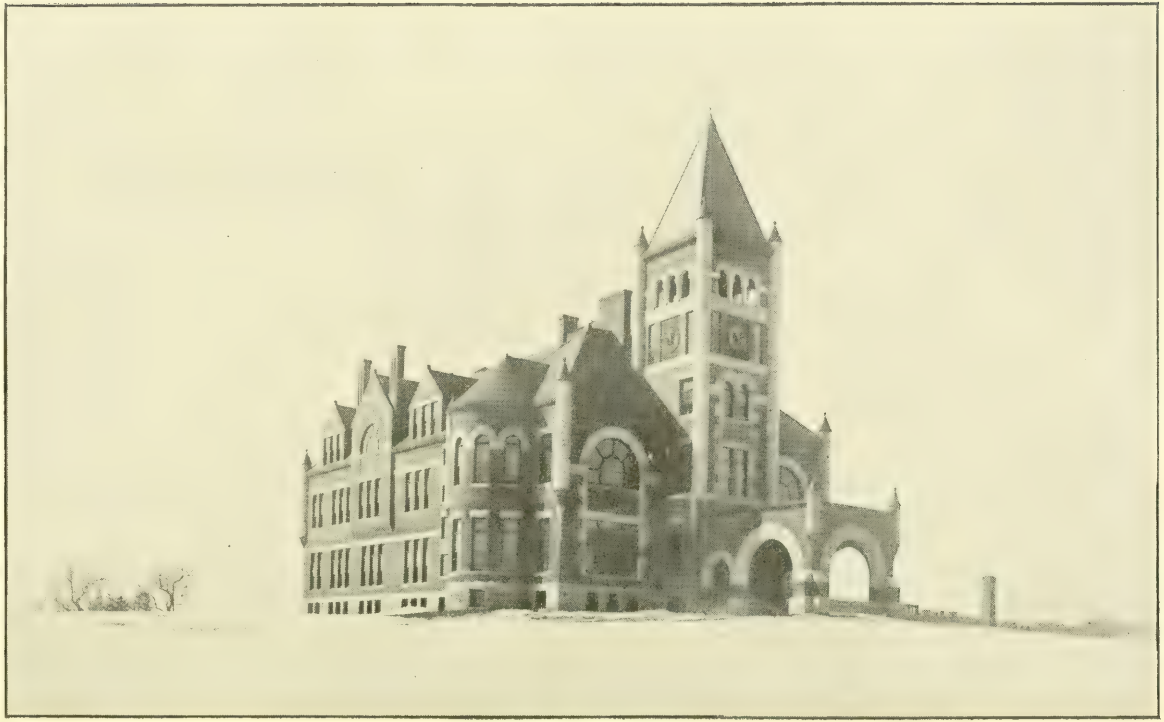
NON-RESIDENT COURSE IN AGRICULTURE

Abbott, S. E.	*East Aurora, New York.*
Adams, Charles L.	*East Providence, Rhode Island.*
Anderson, James A.	*Andover, Illinois.*
Ballinger, Ellis G.	*East View, Virginia.*
Bennett, Fred R.	*Bridgehampton, New York.*
Bates, H. E.	*Painesville, Ohio.*
Cable, D. J.	*Lima, Ohio.*
Calhoun, W. H., Jr.	*Jefferson, North Carolina.*
Chiashi, Lute Y.	*Carpenteria, California.*
Colby, Frank N.	*North Londonderry, New Hampshire.*
Coleman, Mrs. C. H.	*Newington, New Hampshire.*
Coleman, Lydia	*Newington, New Hampshire.*
Cowie, Allan	*Arcadia, Wisconsin.*
Crane, John J.	*New York, New York.*
Crosby, D. L.	*Peterborough, New Hampshire.*
Davis, B. F.	*South Lee, New Hampshire.*
Dodge, Edwin H.	*New Boston, New Hampshire.*
Dodge, William O.	*New Boston, New Hampshire.*
Dunham, G. Burton	*Boston, Massachusetts.*
Fernald, William L.	*Eliot, Maine.*
Gardner, James P., Jr.	*Brooklyn, New York.*
Guthrie, Samuel	*St. Louis, Missouri.*
Hammar, J. F.	*Swampscott, Massachusetts.*
Heimdal, Charles J.	*Prairie Farm, Wisconsin.*
Herrwig, Geo. W.	*Mason City, Illinois.*
Hill, D. H.	*South Lee, New Hampshire.*
Hoyt, Florence	*Newington, New Hampshire.*
Jamieson, William	*St. Louis, Missouri.*

Name.	Residence.
Killough, Harry	*Richmond, Kansas.*
Laskowski, Edward H.	*Brooklyn, New York.*
Lucas, A. G.	*Des Moines, Iowa.*
Lyon, C. D.	*Higginsport, Ohio.*
Morse, Elisha W.	*New Boston, New Hampshire.*
Pickering, Amanda	*Newington, New Hampshire.*
Pickering, Eldora A.	*Newington, New Hampshire.*
Ray, A. D.	*Brooklyn, Georgia.*
Reibsamen, F.	*Cabin Point, Virginia.*
Rengermann, William	*East Granby, Connecticut.*
Robb, George	*Tonganoxie, Kansas.*
Robbins, Luther	*Hollis Depot, New Hampshire.*
Roe, R. E.	*Storm Lake, Iowa.*
Sanford, George F.	*Winchester, New Hampshire.*
Sanford, S.	*Portsmouth, Rhode Island.*
Sawyer, Ansel B.	*Gilford, New Hampshire.*
Sleeper, Katherine	*Wonolancet, New Hampshire.*
Smith, George Wm.	*St. James, New York.*
Snodgrass, James	*St. Louis, Missouri.*
Staples, Faith E.	*Newington, New Hampshire.*
Staples, Mrs. F. M.	*Newington, New Hampshire.*
Stoneroad, V.	*Lewistown, Pennsylvania.*
Sumpter, O. H.	*Hot Springs, Arkansas.*
Teague, F. W.	*Victoria, British Columbia.*
Upham, Walter J.	*Weston, Massachusetts.*
Walden, A. T.	*Wonolancet, New Hampshire.*
Whaley, E. M.	*Courtenay, Florida.*
Whitehead, A. C.	*Eastman, Georgia.*
Williamson, Syvert S.	*Addison, Iowa.*

SUMMARY

Freshmen	50
Sophomores	34
Juniors	3
Seniors	4
Specials	2
Summer School Students	15
Non-Resident Students	57
	165
Twice Classified	1
	164



Thompson Hall.

ADMISSION

Candidates for the first year must present testimonials of good moral character, and must pass an examination in the following subjects:

a. Arithmetic, including the metric system.
b. Algebra, to quadratics.
c. Plane Geometry.
d. Political and Physical Geography.
e. Physiology.
f. American History.
g. English.

Those who pass also an examination in Myer's and Allen's Ancient History and Myer's Mediæval and Modern History, or its equivalent, may take French in place of the History of the first year.

In English the examination will consist in the criticism of specimens of incorrect English, together with a short essay, correct in spelling, punctuation, division into paragraphs, grammar and expression, on a subject to be announced at the time of the examination. In 1895 the subject will be taken from one of the following books; Shakespeare's Merchant of Venice and Twelfth Night; Milton's L'Allegro, Il Penseroso, Comus and Lycidas; Longfellow's Evangeline; the Sir Roger de Coverly Papers in the Spectator; Macaulay's Essay on Milton and Essay on Addison; Webster's first Bunker Hill Oration; Irving's Sketch-Book; Scott's Abbot.

In 1896, Shakespeare's Merchant of Venice and Midsummer Night's Dream; Milton's L'Allegro, Il Penseroso, Comus and Lycidas; Longfellow's Evangeline; Macaulay's Essay on Milton; Webster's first Bunker Hill Oration; De Foe's History of the Plague in London; Irving's Tales of a Traveler; Scott's Woodstock; George Eliot's Silas Marner.

In 1897, Shakespeare's Merchant of Venice and As You Like It; Scott's Marmion; Longfellow's Evangeline; Burke's Speech on Conciliation with America; Macaulay's Life of Samuel Johnson; De Foe's History of the Plague in London; Irving's Tales of a Traveler; Hawthorne's Twice-Told Tales; George Eliot's Silas Marner.

Students are advised to prepare themselves thoroughly in all the required subjects, and especially in English, in order that they may be able to express themselves clearly, concisely, and accurately.

They are further recommended not to limit their preparation to these requirements. The excellent academies and high schools of New Hampshire put within their reach a preliminary training which will add greatly to the value of a college course.

Candidates for advanced standing are examined in the studies that have been pursued by the class which they propose to enter, as well as in the studies required for admission.

A certificate from any academy or high school will be accepted in place of an examination, upon any subject required for admission to the first year. Every certificate must state the amount of work done by the student, his proficiency, and the text-books used; and in case it is not evident that the student is thoroughly prepared, an examination will be required. Certificate forms will be furnished on application.

The times for examination are Monday and Tuesday, June 3 and 4, and Tuesday and Wednesday September 3 and 4, 1895. Candidates must present themselves with their credentials on the first day of the examination, as indicated by the Calendar.

Upon the request of the principal of any high school or academy, entrance examination papers will be sent to him June 1. If the principal receiving such papers holds an examination on Tuesday, June 4, and within one week sends the answers to the questions to the president, the examination will have the same effect as if held at the college.

DESCRIPTION OF STUDIES

For the Courses of Study see pages 56 et seq.

AGRICULTURE

1. How Crops Grow. *Forty-five exercises.*

This course consists of lectures and recitations upon the composition of plants, the composition and sources of their food, and the processes by which they obtain and assimilate the elements necessary for their growth.

2. Animal Nutrition. *Thirty exercises.*

This course consists of lectures and recitations upon the physiology of the alimentary organs, the composition of foods, their assimilation, and the composition of the animal body.

3. Principles of Agriculture. *Twenty exercises.*

An exposition of the relations of the natural sciences to agriculture.

4 and 5. Practical Agriculture. *One hundred exercises.*

These two courses form a consecutive series of exercises, in which instruction is given by means of practical talks and exercises relative to fertilizers, soils, fruits, vegetables, bees, fowls, and other subjects.

6. Dairying and Dairy Chemistry. *Forty-five exercises.*

Course 6 consists of lectures and recitations upon the composition and manufacture of dairy products, and practical work in the dairy room.

7. Practical Stock Feeding. *Thirty exercises.*

Course 7 is a continuation of Course 3, and consists of lectures upon the compounding of food rations for stock, the action of various foods upon the animal system, and the most approved practice in feeding for the production of milk, butter, live weight, etc. The lectures are accompanied by practical illustrations.

8. Applied Agriculture. *Twenty exercises.*

Course 8 is a continuation of Course 4, and is a further discussion of the relations and applications of the sciences to Agriculture.

9. Agricultural Engineering. *Twenty exercises.*

Course 9 consists of instruction in planning and locating drains, roads, and buildings, upon the farm; and discussions on the different forms and uses of agricultural machinery.

10. Stock Breeding. *Twenty exercises.*

Recitations and lectures.

11. Experimental Agriculture. *Twenty exercises.*

Course 11 is the conclusion of Courses 4 and 9, and consists of lectures upon the methods of agricultural research, discussions of problems under investigation by scientists, and observations of experiments in progress upon the College Farm.

12. Discussions of the Bulletins of Experiment Stations. *Thirty-five exercises.*

Course 12 consists of weekly discussions and reviews of bulletins, with reference to their scientific and practical value.

13. Special Work in Agriculture. *Thirty exercises.*

The time given to Course 13 will be used by the student in pursuing original work upon some subject in which he has shown especial ability, and may be chosen by him, subject to the approval of the Professor of Agriculture.

BOTANY

1. Introductory Botany. *Fifty exercises.*

A general introduction to the study of plants by means of laboratory work and lectures.

2. Structural Botany. *Forty-five exercises.*

Lectures and laboratory work on the minute structure and physiology of plants, with special reference to the lower forms.

Open only to those who have taken Course 1.

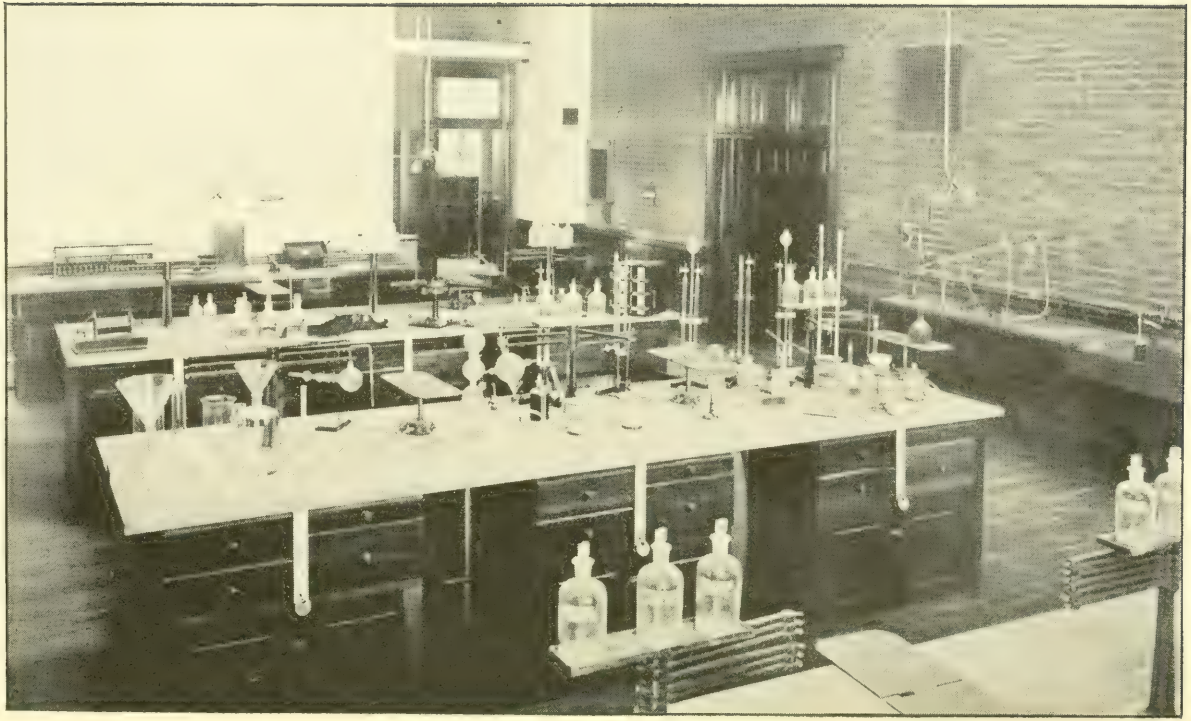
3. Forestry.

Lectures concerning the utility of forests, principles of sylviculture; forestry laws, character and composition of woods, and the distribution of timber trees in the United States.

4. Plant Diseases. *Thirty exercises.*

A study by means of lectures and laboratory work of some of the more important fungous diseases of cultivated plants and the means of preventing their injuries.

Open only to students who have completed Botany 1 and 2.



Quantitative Chemical Laboratory.

5. Advanced Botany.

Avreaging four exercises a week for a year.

Course 5 is intended for students electing botany for their Senior year, the instruction to be modified by needs of individual students.

Open only to those who have taken all preceding courses.

CHEMISTRY

1. Inorganic Chemistry. *Forty-five exercises.*

Lectures and recitations on general theoretical chemistry, illustrated by experiments, charts, specimens, lantern views, etc. Solutions of chemical problems will be required.

2. Inorganic Chemistry. *Thirty exercises.*

Course 2 is a continuation of Course 1, but the time will be spent mainly on the metallic elements, their metallurgy, salts, etc.

Open only to students who have passed in Course 1.

3. Organic Chemistry. *Thirty exercises.*

Course 3 will consist of lectures and recitations on the chemistry of the carbon compounds, together with the study of their properties by means of laboratory practice.

Open only to students who have passed in Course 1.

4. Organic Chemistry. *Twenty exercises.*

Course 4 is a continuation of Course 3 and must be preceded by it.

5. Qualitative Chemical Analysis.

Course 5 consists of laboratory practice with occasional lectures. The student is expected to become proficient in the separation and detection of the common acids and bases, and to keep a full set of notes. He will have practice in the writing of reactions and will fill out numerous slips containing questions bearing upon his work.

Open only to students who have completed Courses 1 and 2.

6. Qualitative Analysis completed and Quantitative Analysis begun. *Course extends through two terms.*

The work in quantitative analysis will be, in the main, elementary and pre paratory for advanced work.

Open to those who have completed Course 5.

7. Applied or Industrial Chemistry. *Forty exercises.*

Course 7 consists of lectures on chemical manufactures, such as iron, steel sugar, salt, sodium carbonate, fertilizers, sulphuric acid, glass, matches, paints

dyes, soaps, illuminating gas, petroleum, etc. The lectures will be illustrated by lantern views; and trips to the leading New England cities, to examine important chemical manufactures, will be taken as far as practicable.

Open only to those who have completed Courses 1, 2, 3, and 4.

8. Quantitative Analysis.

Course 8 consists of special work arranged for those in the Agricultural Course who are limited to the chemistry of the Junior Year. The course consists mainly in the analysis of fertilizers, fodders, grains, milk, and other dairy products, etc.

Open to those students who have completed Course 5.

9. Advanced Quantitative Analysis.

Course 9 extends through the year and is intended to fit the student for work in the laboratories of agricultural experiment stations, fertilizer works, iron works, sugar refineries, etc.; and for the duties of the public analyst. The course will be made to fit the end which each has in view, and will be largely an individual one. For those students in the Chemical Division of the Agricultural Course the analyses made will tend in the main toward agricultural products, fertilizers, mucks, marls, manures, dairy products, waters, food stuffs, sugars, etc. For the student wishing to enter metallurgical works the analyses will be in the main upon iron, steel, and other metals, ores, limestone, slags, alloys, fuels, etc. As a preparation to the study of medicine, work will be done on poisons, foods, drugs, urine, etc. Other lines will be arranged to meet the wants of the individual student. Every student will be given some practice in all of the branches of agricultural, metallurgical, medical, sanitary, and industrial chemistry, in order to lay a foundation for any future work which may be required of them. A short course in gas analysis will also be provided. A portion of the time of the last two terms is given to work bearing upon the preparation of a graduating thesis.

Open to students who have completed Course 6.

10. Organic Chemistry.

Course 10, for students in the Chemical Division of the Agricultural Course, and in the Technical Chemistry Course, consists of laboratory practice by the students in preparing and purifying products relating to their respective lines of work.

Open to those who have taken Courses 3 and 4.

11. Chemical Journals, Methods, etc. *Thirty-five exercises.*

The work consists in the study of current chemical literature, which is mainly in the German language, with recitations once a week throughout the year. Each student will be expected to prepare abstracts, reports, criticisms, etc., upon assigned articles.

Open to students taking Course 9.

12. Chemical Philosophy. Lectures and Recitations.
Forty exercises.

Work consists in advanced study of chemical theory. Practical experiments will be performed, with the aid of the student, in the determination of vapor density, molecular weights, specific heat, etc.; and the study of isomorphism, diffusion of gases, solutions, molecular and atomic volume, etc., will take up much of the time.

Course 12 comes in alternate years with Course 7 and is open to students who have completed Courses 1, 2, 3, and 4.

DRAWING

Two and one half hours work is reckoned as one exercise.

1. Freehand Drawing.

a. Thirty exercises. *b. Twenty exercises.*

The course includes outline drawing from models, and groups of common objects, light and shade drawing from models and from casts of historic ornament; the consideration of perspective principles; elementary design; machine sketching and the use of instruments.

2. Advanced Freehand Drawing.

a. Thirty exercises. *b. Twenty exercises.*

This course includes drawing from the cast and from still life with charcoal and stump; pencil sketching; the use of water color; design.

3. Descriptive Geometry and Drawing.

a. Fifty exercises. *b. Thirty exercises.*

Graphic solution of problems in solid geometry.

Course 2 is open only to those who have taken Mathematics 2.

4. Mechanical Drawing.

a. Elementary Projection Drawing. *Twenty exercises.*

b. Perspective Drawing and Line Shading. *Twenty exercises.*

c. Workshop Drawings. Tracing and the blue process of copying drawings. *Thirty exercises.*

ENGINEERING

1. Surveying. *Fifty exercises.*

Recitations, field work, and plotting, including compass, transit, plane-table, and level work.

2. Mechanism. *Seventy-five exercises.*

Recitations, and exercises in drawing outlines of elementary combinations.

Course 2 is open only to those who have taken Drawing 3.

3. Mechanics of Engineering. *One hundred exercises.*

a. Dynamics (Statics and Kinetics).

b. Mechanics of Materials.

Course 3 is open only to those who have taken Course 2 and Mathematics 6.

4. Materials of Construction. *Sixty exercises.*

Recitations on the production, properties, uses and preservation of engineering materials.

Course 4 is open only to those who have taken Course 3 b and Chemistry 2.

5. Thermodynamics. *Seventy-five exercises.*

Course 5 is open only to those who have taken Course 3 b and Physics 4 to 6.

6. Heat Motors and Refrigerating Machinery. *Thirty exercises.*

Recitations.

Course 6 is open only to those who have taken Course 5.

7. Construction and Theory of Dynamos and Electro-motors. *Seventy-five exercises.*

Lectures and quizzes.

Course 7 is open only to those who have taken Physics 4 to 6 and Mathematics 5 and 6.

8. Work in Mechanical Laboratory.

a. and *b*. Tests of Materials. *Sixty exercises.*

c. Tests of Boilers and Engines. *Twenty exercises.*

Courses 8 a and 8 b are open only to those who have taken Course 3 b. Course 8 c is open only to those who have taken Course 5.

9. Machine Design. *Forty exercises.*

Recitations.

Course 9 is open only to those who have taken Courses 3 and 4.

10. Dynamo Design. *Forty exercises.*

Work in the drawing room in the elementary designing of dynamos and electro-motors.

Course 10 is open to those who have taken Course 7.

11. Electrical Installations. *Thirty exercises.*

Lectures and quizzes on the methods and systems of electric lighting and electric distribution of power.

Course 11 is open only to those who have taken Course 7.

12. Sanitary Engineering. *Ten exercises.*

Lectures on heating, ventilation, drainage, and plumbing of public and private buildings.

13. Roads, Streets, and Pavements. *Twenty exercises.*

Recitations and lectures on construction and maintenance of paved, macadamized, and gravel roads, with discussion of laws relating thereto.

ENGLISH

1. Rhetoric. *Seventy exercises.*

Themes, with other exercises.

2. Three Themes. *One each term.*

3. Three Original Declamations. *One each term.*

4. Three Original Declamations. *One each term.*

5. English Literature, Chaucer to Addison. *Forty-five exercises.*

Study of authors.

6. English Literature, De Foe to Wordsworth. *Twenty exercises.*

Study of authors.

7. English Literature, Victorian Writers. *Thirty exercises.*

8. American Literature. *Forty exercises.*

Lectures and study of authors.

FRENCH

1. French Grammar and Tales. *Forty-five exercises.*

2. Easy Reading with Supplementary Syntax. *Thirty exercises.*

3. The Romantic School. *Thirty exercises.*

4. History of French Literature. *Forty-five exercises.*

5. Satire, Voltaire. *Thirty exercises.*

6. The Classic School. *Thirty exercises.*

Courses 4, 5, and 6 are open only to students who have completed the preceding courses.

GEOLOGY

1. Elementary Geology. *Thirty exercises.*

2. Mineralogy. *Thirty exercises.*

A short course in blowpipe analysis, followed by laboratory practice in the determination and study of minerals, with special reference to their economic value.

Course 2 is open only to students who have taken Chemistry 1 and 2.

3. Meteorology. *Twenty exercises.*

Recitations and lectures on wind systems, precipitation, humidity, laws of storms and tornadoes, and methods of prediction of atmospheric changes.

GERMAN

1. German Grammar and Tales. *Forty-five exercises.*

2. Easy Reading and Syntax. *Thirty exercises.*

3. Lyric Poetry. *Thirty exercises.*

4. Scientific German. *Forty-five exercises.*

5. Prose Literature. *Thirty exercises.*

6. German Drama. *Thirty exercises.*

Courses 4, 5, and 6 are open only to students who have completed the preceding courses.

HISTORY

1. Ancient History. *Forty-five exercises.*

2. Mediæval History. *Thirty exercises.*

3. Modern History. *Thirty exercises.*

4. American Political History. *Forty-five exercises.*

MATHEMATICS

1. Higher Algebra. *Sixty-five exercises.*

2. Solid Geometry, with advanced course. *Fifty-five exercises.*

3. Plane and Spherical Trigonometry. *Sixty exercises.*

4. Theory of Equations. *Thirty exercises.*

5. Analytic Geometry. *Seventy-five exercises.*

6. Differential and Integral Calculus. *One hundred exercises.*

PHILOSOPHY

1. Logic. *Thirty exercises.*

Lectures and recitations.

2. Ethics. *Twenty exercises.*

Lectures and recitations.

PHYSICS

1. Mechanics and Heat. *Forty-five exercises.*

2. Electricity and Magnetism. *Thirty exercises.*

3. Light and Sound. *Thirty exercises.*

Courses 1, 2, and 3 are a general introduction to the subject. The instruction is given by recitations and lectures, the latter being illustrated by experiments and stereopticon. Notes on lectures and experiments are submitted by each student.

4. Laboratory Work in Mechanics and Heat. *Forty-five exercises.*

5. Laboratory Work in Heat and Light. *Thirty exercises.*

6. Laboratory Work in Electricity and Magnetism. *Thirty exercises.*

The work consists in the experimental verification of the laws of physics and the determination of physical constants; for example, the student will by experiments investigate the intensity of gravity, co-efficients of friction, the analytical balance, elasticity of wires, specific heats, laws of radiation and absorption of heat, candle power of lights, dip, declination and intensity of the earth's magnetism, laws of electric currents, of electro-magnets, etc. A systematic and carefully written report on each experiment is required.

Courses 4, 5 and 6 are taken consecutively and are open only to those who have passed in Courses 1, 2 and 3. Students in Engineering must also have passed in Mathematics 1 to 6.

7. Electrical and Photometrical Measurements.

Thirty exercises.

The work consists in the measurement by various methods of current, resistances, and E. M. F., and in photometric study of arc and incandescent lamps.

Course 7 is open only to those who have passed in Courses 4, 5 and 6.

8. Experimental work on the efficiency, characteristic curves, and curves of potential of dynamos and motors.

Twenty exercises.

Course 8 is open only to those who have passed in Physics 7 and Engineering 7.

9. Advanced Work in Physical Laboratory.

One hundred and five exercises.

Course 9 is open only to those who have passed in Courses 1 to 6.

10. Astronomy. *Forty exercises.*

POLITICAL SCIENCE

1. Political Economy. *Lectures.* *Fifty exercises.*

2. Laws of Business. *Lectures.* *Thirty-three exercises.*

3. Constitutional Law. *Forty exercises.*

4. Advanced Political Economy. *Thirty exercises.*

Course 4 is open only to those who have taken Course 1.

SHOP WORK

Three hours work in the shops is reckoned as one exercise.

1. Work in Wood Shop.

Exercises in carpentry, joinery, and pattern making.

a. Forty-five exercises. *b. Thirty exercises.*
c. Thirty exercises. *d. Forty-five exercises.*
e. Thirty exercises. *f. Thirty exercises.*

2. Work in Machine Shop.

Exercises in bench work, machine work, and shop measurements.

a. Thirty exercises. *b. Twenty exercises.*
c. Twenty exercises. *d. Forty-five exercises.*
e. Thirty exercises. *f. Thirty exercises.*

ZOÖLOGY

1. Introductory Zoölogy. *Forty-five exercises.*

A general introduction to the study of animal life, by means of lectures and laboratory dissections of the principal types.

2. Animal Biology. *Forty exercises.*

A general study of the nature and process of animal life, with especial attention to heredity, variation, development, and mental powers.

Open to students who have taken Course 1.

3. Entomology. *Fifty exercises.*

A review of the classification, structural characters, and biological relations of insects, with a special study of those injurious to cultivated crops and domestic animals, and of the means of preventing their injuries.

Open only to those who have taken Courses 1 and 2.

4 *a*. Systematic Ornithology. *Twenty exercises.*

Lectures on the classification of birds, with laboratory determinations of species.

4 *b*. Economic Ornithology. *Twenty exercises.*

Lectures on the relations of birds to agriculture, and their relations to each other and to other organisms.

Courses 4 a and 4 b are open only to students who have taken Courses 1, 2, and 3.

5. Advanced Zoölogy.

Averaging four exercises a week for a year.

Course 6 is intended for those students who elect Zoölogy for their Senior Year. It will usually be modified to suit individual needs. Open only to those who have completed all preceding courses.

6. Zoölogical Bibliography. *One hour a week for a year.*

Open only to students taking Course 5.

7. Biological Literature. *Thirty exercises.*

COURSES OF STUDY

For details see Description of Studies.

REGULAR COURSE*

Freshman Year.

FIRST TERM.

	Hours per week.
Rhetoric and Themes—English 1	2
Algebra and Geometry—Mathematics 1 and 2	6
Shop Work‡—Shop Work 1 *a*	3
Freehand Drawing—Drawing 1 *a*	2
Ancient History—History 1; or French†—French 1	3

SECOND TERM.

Rhetoric and Themes—English 1	2
Geometry and Trigonometry—Mathematics 2 and 3	6
Shop Work‡—Shop Work—1 *b*	3
Freehand Drawing—Drawing 1 *b*	2
Mediæval History—History 2; or French†—French 2	3

THIRD TERM.

Rhetoric and Themes—English 1	2
Trigonometry—Mathematics 3	3
Descriptive Geometry—Drawing 3 *a*; or Botany—Botany 1	5
Modern History—History 3; or French†—French 3	3
Theory of Equations—Mathematics 4; or Shop Work 1 *c*‡	3

* For the first two years students are not designated as being in any of the special courses, but all take the studies laid down in the regular course.

† French can be elected by those who have taken History 1, 2, and 3.

‡ French is taken by women in place of Shop Work.

Sophomore Year.

FIRST TERM.

	Hours per week.
Analytic Geometry—Mathematics 5; or Drawing 2 *a* and English Literature—English 5	5 or 4
French,‡ 1 or 4; or German 1; or Shop Work 1 *d*	3
Physics—Physics 1	3
Shop Work 1 *d*; or Botany 2	3
Descriptive Geometry—Drawing 3 *b*; or Inorganic Chemistry—Chemistry 1	2 or 3
One Theme.	

SECOND TERM.

Calculus—Mathematics 6; or Inorganic and Organic Chemistry—Chemistry 2 and 3	5 or 6
French 2 or 5; or German 2; or Shop Work 1 *e*	3
Physics—Physics 2	3
Drawing 3 *b*; or English Literature—English 6	2
Shop Work 1 *e*; or Drawing 1 *d*	3 or 2
One Theme.	

THIRD TERM.

Calculus—Mathematics 6; or Organic Chemistry—Chemistry 4; and Mineralogy—Geology 2	5
Surveying—Engineering 1	5
Physics—Physics 3	3
French 3 or 6; or German 3	3
One Theme.	

Women may substitute for surveying one of the elective studies from the third term of the Junior Year.

‡ French is required of those students who intend to take the work of the Chemical and Biological Divisions.

COURSE IN AGRICULTURE

This course is designed to give young men a thorough knowledge of practical Agriculture and the sciences having a direct bearing upon it, without neglecting the broad principles of a general education.

The strictly agricultural work is planned to give valuable knowledge for future use on the farm or in the dairy.

The Chemical and Biological Divisions are designed to give professional training in these two sciences which have such a close connection with modern Agriculture.

Junior Year.

FIRST TERM.

	Hours per week
Zoölogy—Zoölogy 1	3
How Crops Grow—Agriculture 1	3
Chemistry—Chemistry 5	5
Plant Diseases—Botany 4	2
German—German 1; or Physical Laboratory—Physics 4	3
One Original Declamation—English 3.	

SECOND TERM.

Animal Nutrition—Agriculture 2	3
Geology and Meteorology—Geology 1 and 3	5
Agricultural Chemistry—Chemistry 8	3
Principles of Agriculture—Agriculture 3	2
German—German 2; Animal Biology—Zoölogy 2	3
One Original Declamation—English 3.	

THIRD TERM.

Entomology—Zoölogy 3	5
Ethics—Philosophy 2	2
Practical Agriculture—Agriculture 4	4
Roads—Engineering 13	2
German—German 3; or Chemistry—Chemistry 6	3
One Original Declamation—English 3.	

Senior Year.

FIRST TERM.

	Hours per week.
Laws of Business and Constitutional Law—Political Science 2 and 3	5
Dairying and Dairy Chemistry—Agriculture 6	3
Practical Agriculture—Agriculture 5	4
Discussion of Experiment Station Bulletins—Agriculture 12	1
German—German 4; or Political History—History 4	3
One Original Declamation—English 4.	

SECOND TERM.

Astronomy and Sanitary Science—Physics 10, Engineering 12	5
Stock Feeding—Agriculture 7	3
Applied Agriculture—Agriculture 8	2
Economic Ornithology—Zoölogy 4 *b*	2
Discussion of Experiment Station Bulletins—Agriculture 12	1
German—German 5; or Special Work—Agriculture 13	3
One Original Declamation—English 4.	

THIRD TERM.

Political Economy—Political Science 1	5
Agricultural Engineering—Agriculture 9	2
Stock Breeding and Experimental Agriculture—Agriculture 10 and 11	4
Discussion of Experiment Station Bulletins—Agriculture 12	1
German—German 6; or Logic—Philosophy 1	3
One Original Declamation—English 4.	

CHEMICAL DIVISION OF THE AGRICULTURAL COURSE

The work in this division is intended especially to fit for the profession of an agricultural chemist—for work in experiment stations, large dairy establishments, fertilizer works, etc. This field offers, perhaps, more inducements for investigation in chemical science than any other. The chemistry of plant or animal growth and nutrition is comparatively undeveloped, and offers a wide and profitable field for research.

Junior Year.

FIRST TERM.

	Hours per week.
How Crops Grow—Agriculture 1	3
German—German 1	3
Plant Diseases—Botany 4	2
Zoölogy—Zoölogy 1	3
Chemistry—Chemistry 5	5

One Original Declamation—English 3.

SECOND TERM.

Animal Nutrition—Agriculture 2	3
German—German 2	3
Geology—Geology 1	3
Chemistry—Chemistry 6	5
Applied Chemistry—Chemistry 7	2

One Original Declamation—English 3.

THIRD TERM.

Entomology—Zoölogy 3	5
German—German 3	3
Chemistry—Chemistry 6	5
Applied Chemistry—Chemistry 7	2

One Original Declamation—English 3.

Senior Year.

FIRST TERM.

Constitutional Law and Laws of Business—Political Science 2 and 3	5
German—German 4	3
Chemistry—Chemistry 9	5
Organic Chemistry—Chemistry 10	2
Chemical Journals, Methods, etc.—Chemistry 11	1

One Original Declamation—English 4.

SECOND TERM.

Astronomy—Physics 10	4
Sanitary Engineering—Engineering 12	1

	Hours per week.
German—German 5	3
Chemistry—Chemistry 9	5
Chemical Philosophy—Chemistry 12	2
Chemical Journals, Methods, etc.—Chemistry 11	1
One Original Declamation—English 4.	

THIRD TERM.

Political Economy—Political Science 1	5
German—German 6	3
Chemistry—Chemistry 9	5
Chemical Philosophy—Chemistry 12	2
Chemical Journals, Methods, etc.—Chemistry 11	1
One Original Declamation—English 4.	

BIOLOGICAL DIVISION OF THE AGRICULTURAL COURSE

Students desiring to make a special study of the biological sciences relating to Agriculture—such as botany, entomology, economic zoölogy, etc.—may elect the following schedule for their last two years:

Junior Year.

FIRST TERM.

	Hours per week.
Zoölogy—Zoölogy 1	3
How Crops Grow—Agriculture 1	3
German—German 1	3
Chemistry—Chemistry 5	5
Plant Diseases—Botany 4	2
One Original Declamation—English 3.	

SECOND TERM.

Animal Nutrition—Agriculture 2	3
Geology—Geology 1	3
German—German 2	3
Chemistry—Chemistry 6	3
Animal Biology—Zoölogy 2	4
One Original Declamation—English 3.	

THIRD TERM.

	Hours per week.
Entomology—Zoölogy 3	5
German—German 3	3
Logic—Philosophy 1	3
Agriculture—Agriculture 5	3
Ethics—Philosophy 2	2

One Original Declamation—English 3.

Senior Year.

FIRST TERM.

Laws of Business and Constitutional Law—Political Science 2 and 3	5
German—German 4	3
Botany—Botany 5; or Zoölogy—Zoölogy 5 and 6	6
Biological Literature—Zoölogy 7	2

One Original Declamation—English 4.

SECOND TERM.

Astronomy—Physics 10	4
Sanitary Science—Engineering 12	1
German—German 5	3
Ornithology—Zoölogy 4	4
Botany—Botany 5; or Zoölogy—Zoölogy 5 and 6	4

One Original Declamation—English 4.

THIRD TERM.

Political Economy—Political Science 1	5
German—German 6	3
American Literature—English 8	3
Botany—Botany 5; or Zoölogy—Zoölogy 5 and 6	5

One Original Declamation—English 4.

COURSE IN TECHNICAL CHEMISTRY

This course is designed to meet the needs of the general professional chemist. Those desiring to give their chief time to agricultural chemical research and analysis are advised to take the Agricultural course, giving their last two years to the Chemical Division of that course.

Junior Year.

FIRST TERM.

	Hours per week.
Chemistry—Chemistry 5	5
German—German 1	3
Physical Laboratory—Physics 4	3
How Crops Grow—Agriculture 1	3
Plant Diseases—Botany 4	2
One Original Declamation—English 3.	

SECOND TERM.

Chemistry—Chemistry 6	5
German—German 2	3
Physical Laboratory—Physics 5	3
Geology—Geology 1	3
Applied Chemistry—Chemistry 7	2
One Original Declamation—English 3.	

THIRD TERM.

Chemistry—Chemistry 6	5
German—German 3	3
Physical Laboratory—Physics 6	3
Applied Chemistry—Chemistry 7	2
Machine Shop—Shop Work 2 *a*	2
One Original Declamation—English 3.	

Senior Year.

FIRST TERM.

Chemistry—Chemistry 9	5
Organic Chemistry—Chemistry 10	2
German—German 4	3
Constitutional Law and Laws of Business—Political Science 2 and 3	5
Chemical Journals, Methods, etc.—Chemistry 11	1
One Original Declamation—English 4.	

SECOND TERM.

	Hours per week.
Chemistry—Chemistry 9	5
German—German 5	3
Astronomy—Physics 10	4
Sanitary Engineering—Engineering 12	1
Chemical Philosophy—Chemistry 12	2
Chemical Journals, Methods, etc.—Chemistry 11	1
One Original Declamation—English 4.	

THIRD TERM.

Chemistry—Chemistry 9	5
German—German 6	3
Political Economy—Political Science 1	5
Chemical Philosophy—Chemistry 12	2
Chemical Journals, Methods, etc.—Chemistry 11	1
One Original Declamation—English 4.	

COURSE IN MECHANICAL ENGINEERING

Junior Year.

FIRST TERM.

Mechanism—Engineering 2	5
French*—French 4; or German—German 4	3
Chemistry—Chemistry 1	3
Physical Laboratory—Physics 4	3
Shop Work—Shop Work 2 *a*	2
One Original Declamation—English 3.	

SECOND TERM.

Mechanics of Engineering—Engineering 3 *a*	5
French*—French 5; or German—German 5	3
Chemistry—Chemistry 2	3
Physical Laboratory—Physics 5	3
Shop Work—Shop Work 2*b*	2
One Original Declamation—English 3.	

*Engineering students who take French in Freshman year take German in the two following years. Engineering students who take History in Freshman year may elect between two years of French and two years of German.

THIRD TERM.

	Hours per week.
Mechanics of Engineering—Engineering 3 *b*	5
French—French 6; or German—German 6	3
Mineralogy—Geology 2	3
Physical Laboratory—Physics 6	3
Shop Work—Shop Work 2 *c*	2
One Original Declamation—English 3.	

Senior Year.

FIRST TERM.

Materials of Construction—Engineering 4	4
Thermodynamics—Engineering 5	3
Chemistry—Chemistry 5	2
Drawing—Drawing 3 *c*	2
Shop Work—Shop Work 2 *d*	3
Mechanical Laboratory—Engineering 8 *a*	2
One Original Declamation—English 4.	

SECOND TERM.

Thermodynamics—Engineering 5	3
Chemistry—Chemistry 6	2
Mechanical Laboratory—Engineering 8 *b*	3
Machine Design—Engineering 9	4
Shop Work—Shop Work 2 *e*	3
Work on Thesis	1
One Original Declamation—English 4.	

THIRD TERM.

Political Economy—Political Science 1	5
Heat Motors and Refrigerating Machines—Engineering 6	3
Mechanical Laboratory—Engineering 8 *c*	2
Shop Work—Shop Work 2 *f*	3
Work on Thesis	3
One Original Declamation—English 4.	

COURSE IN ELECTRICAL ENGINEERING

For three years the course is the same as the course in Mechanical Engineering. The work of the fourth year is almost entirely technical. Recitations and lectures are supplemented by work in the laboratories and by the inspection and study of machinery in operation.

For the latter purpose the electric lighting and electric street railway systems in operation within ten miles of the college furnish excellent opportunities. Even more valuable will be a central station, on the alternating system, operated by the college itself, which the student will be enabled to study and test.

Junior Year.

Same as the Mechanical Engineering Course.

Senior Year.

FIRST TERM.

	Hours per week.
Materials of Construction—Engineering 4	4
Thermodynamics—Engineering 5	3
Chemistry—Chemistry 5	2
Drawing—Drawing 3 *c*	2
Dynamo-Electric Machinery—Engineering 7	5

One Original Declamation—English 4.

SECOND TERM.

Thermodynamics—Engineering 5	3
Chemistry—Chemistry 6	2
Mechanical Laboratory—Engineering 8 *b*	3
Dynamo Design—Engineering 10	4
Electrical Laboratory—Physics 7	3
Work on Thesis	1

One Original Declamation—English 4.

THIRD TERM.

Political Economy—Political Science 1	5
Heat Motors—Engineering 6	3
Electrical Laboratory—Physics 8	2
Electrical Installations—Engineering 11	3
Work on Thesis	3

One Original Declamation—English 4.

GENERAL COURSE

Junior Year.

FIRST TERM.

	Hours per week.
German—German 1	3
Laboratory work in Chemistry 5	5
One Original Declamation—English 3.	

Elective, eight hours per week, from the following:

How Crops Grow—Agriculture 1	3
Plant Diseases—Botany 4	2
Laboratory Work in Physics—Physics 4	3
Analytic Geometry—Mathematics 5	5
Zoölogy—Zoölogy 1	3

SECOND TERM.

German—German 2	3
English Literature—English 7	3
One Original Declamation—English 3.	

Elective, ten hours per week, from the following:

Animal Nutrition—Agriculture 3	3
Geology—Geology 1	3
Laboratory Work in Chemistry—Chemistry 6	3 to 5
Laboratory Work in Physics—Physics 5	3
Animal Biology—Zoölogy 2	3
Calculus—Mathematics 6	5

THIRD TERM.

German—German 3	3
Political Economy—Political Science 1	5
One Original Declamation—English 3.	

Elective, eight hours per week, from the following:

Entomology—Zoölogy 3	5
Logic—Philosophy 1	3
Laboratory Work in Chemistry—Chemistry 6	3 or 5
Laboratory Work in Physics—Physics 6	3
Calculus—Mathematics 6	5

Senior Year.

FIRST TERM.

	Hours per week.
Constitutional Law and Laws of Business—Political Science 2 and 3	5
German—German 4	3
One Original Declamation—English 4.	

Elective, eight hours per week, from the following:

American Political History—History 4	3
Advanced Work in Physical Laboratory—Physics 9	3
Laboratory Work in Chemistry—Chemistry 9	3 to 5
Advanced Botany—Botany 5	4
Advanced Zoölogy—Zoölogy 5 and 6	4 or 5

SECOND TERM.

Astronomy and Sanitary Science—Physics 10 and Engineering 12	5
German—German 5	3
One Original Declamation—English 4.	

Elective, eight hours per week, from the following:

Advanced Political Economy—Political Science 4	3
Advanced Work in Physical Laboratory—Physics 9	3
Laboratory Work in Chemistry—Chemistry 9	3 or 5
Advanced Botany—Botany 5	4
Advanced Zoölogy—Zoölogy 6 and 7	4 or 5
Meteorology—Geology 3	2
Ornithology—Zoölogy 4 *a*	2

THIRD TERM.

American Literature—English 8	4
German—German 6	3
Work on Thesis.	
One Original Declamation—English 4.	

Elective, four to six exercises per week, from the following:

Advanced Work in Physical Laboratory—Physics 9	3
Laboratory Work in Chemistry—Chemistry 9	3 or 5
Advanced Botany—Botany 5	4
Advanced Zoölogy—Zoölogy 5 and 6	4 or 5
Roads—Engineering 13	2
Ethics—Philosophy 2	2

SUMMER SCHOOL OF BIOLOGY

The impetus recently given to nature-study in the secondary and lower schools has led to a demand for the more thorough preparation of teachers in the essentials of botany and zoölogy. Teachers cannot get special training in these branches during the college year, because it coincides with their teaching year. In the past their opportunities for getting it during the summer have been limited, on account of the lack of summer schools.

To meet this demand the New Hampshire College, coöperating with Superintendent Gowing of the State Department of Public Instruction, has instituted a Summer School of Biology, especially adapted to the needs of teachers. It is held in the laboratories and class rooms of Thompson Hall, students being granted free use of the library, microscopes, aquaria, collections and other facilities. The laboratory instruction is supplemented by work in the field and class room, and by informal discussions of such topics as are likely to prove useful for illustrative purposes in nature-study in the lower schools.

The course of study covers the line of work in botany and zoölogy recommended in the recent report of the Committee on Secondary School Studies, appointed by the National Educational Association for adoption by the secondary schools. A certificate is given to those who satisfactorily complete the course.

The situation of the college is peculiarly favorable to the study of natural history. Plants and animals inhabiting a great variety of land surface, as well as fresh, brackish, and salt water, are easily accessible.

A programme of the school for 1895 will be issued during the winter, and may be obtained on application to the President.

Applicants may address

PRESIDENT CHARLES S. MURKLAND,
Durham, N. H.

INSTITUTE COURSE IN AGRICULTURE

This course is intended for those who desire a better understanding of the science and practice of Agriculture, but who are unable to pursue the regular course.

The course is expected to prepare men for an intelligent home study of practical agricultural problems. Instruction will be given by means of lectures and laboratory work, the faculty being assisted by specialists. Students will be required to take notes, and join in the discussion which

will frequently follow the lectures. Those interested in particular subjects will be given all available facilities to inform themselves by means of practical work.

The average expense of attendance upon this course will be about $20. This estimate includes railroad fares, room, and board.

An important feature of the course for 1895 will be a practical dairy school, in which the students will become familiar with modern dairy methods through practice in the creamery.

A complete programme of the course will be issued in December. For further information apply to President C. S. Murkland.

NON-RESIDENT COURSE IN AGRICULTURE

This course is primarily designed to meet the needs of those farmers' sons who are unable to leave home to attend college, but who feel the want of the fuller knowledge of their work which the college offers.

The instruction in this course is given mainly by correspondence. Where several of the students live near together members of the faculty give lectures in person at occasional intervals, thus bringing the course into line with both the Chatauqua and University Extension movements.

The best standard books, selected Experiment Station bulletins, and pamphlets written by practical specialists are used. In this way it is hoped to make it a progressive course along practical lines.

The methods of the course are briefly as follows:

1. It is free to all, with no entrance examination or fee. The student can begin at any time; and the privileges of the course are not limited to residents of New Hampshire.

2. Students may work for a certificate or not, as they see fit, but they are strongly urged to do the former. Those who work for certificate will, as studies are finished, send in answers to sets of examination questions: others will submit a statement that they have carefully read the specified works.

3. Each book and each pamphlet is estimated at a certain number of exercises, an exercise averaging ten pages of reading matter.

4. The satisfactory completion of six hundred exercises entitles the student to a certificate. Under ordinary conditions this requires an hour's reading each day, five days a week, for two years.

5. Each student working for a certificate will be required to take certain general studies, such as Soils, Tillage, Noxious Insects, Fungous

Diseases, Meteorology, Laws of Plant Growth, Farm and Household Chemistry, Fertilizers, etc., and to select at least three lines of study from the following or similar subjects:

Dairying.	Orchard Fruits.
Stock-feeding.	Small Fruits.
Stock-breeding.	Vegetables.
Poultry-keeping.	Floriculture.
Field Crops.	Plant Propagation.
Forestry.	Road Construction.

Students not working for a certificate may select any of the above subjects they desire, but it is recommended that they pursue the prescribed lines of general reading in connection with special subjects.

6. The cost of books is not great. As far as possible the college furnishes bulletins free, and books at lowest cost.

It is expected that where several students live near together, the members of the faculty will be able to deliver lectures in person at occasional intervals, thus bringing the course into line with the University Extension movement.

The coöperation of granges, farmers' clubs, village improvement societies, and other organizations is earnestly desired.

Apply, stating what subjects you wish to study, to

PRESIDENT C. S. MURKLAND,
Durham, N. H.

GENERAL INFORMATION

ATTENDANCE

All regular students are required to attend chapel and rhetoricals, and to register for at least sixteen exercises per week.

PRIZES

I. The Smyth Prizes.—Hon. Frederick Smyth, of Manchester, N. H., offers to members of the Senior and Junior classes two prizes, one of twenty dollars and the other of ten, for the best essays on subjects connected with agriculture or the mechanic arts; also three prizes, one of twenty, one of fifteen, and one of ten dollars, for excellence in oratory, open to the upper classes; also two prizes for reading, one of fifteen and one of ten dollars, open to the lower classes.

II. Bailey Prize.—Dr. C. H. Bailey, of Gardner, Mass., and E. A. Bailey, B. S., of Winchendon, Mass., offer a prize of ten dollars for proficiency in chemistry.

III. Erskine Mason Memorial Prize.—Mrs. Erskine Mason, of Stamford, Conn., has invested one hundred dollars as a memorial of her son, a member of the class of '93, the income from which is to be given, for the present, to that member of the Senior class who has made the greatest improvement during his course.

DEGREES

The degree of Bachelor of Science will be conferred upon those who complete a four years course, or its equivalent, and pass the final examinations. Each candidate for a degree must prepare a thesis on some subject relating to the course of study taken.

The college offers opportunities for post-graduate study in agricultural, scientific, and engineering lines. After the satisfactory completion of an appropriate amount of work, advanced degrees will be given.



Conant Hall.

BUILDINGS

THOMPSON HALL

Thompson Hall, the main college building, has a length of 128 feet, exclusive of the porte cochère, which is forty feet long, and a width of 93 feet in the widest part. It is built of granite and brick, and has three stories besides the basement.

One half of the first floor and basement is devoted to the library, which is provided with a large, well lighted reading room for papers and magazines, a reference room for special work, a librarian's room, a delivery room, and shelf space for fifty thousand volumes.

The remainder of the first floor is used for offices, recitations rooms, and a waiting room for women.

On the second floor are more offices and recitation rooms, and the botanical and zoölogical laboratories and the museum.

On the third floor is the large hall used as an auditorium, two literary society rooms, and the bell-boy's room.

The building is lighted by gas and electricity, and provided with the most approved system of heating and ventilation.

CONANT HALL.

[Chemical and Physical Laboratories.]

Conant Hall contains the laboratories and lecture rooms for instruction in chemistry, physics, and electrical engineering. It is a substantial brick building, 92 by 70 feet, and three stories high, including the basement. It is heated by steam brought from the shops, lighted by gas and electricity, and provided with a system of thorough ventilation. Water, gas, high pressure steam, hydrogen, oxygen, vacuum, and blast are supplied through pipes wherever needed, and the lecture rooms, in addition, have switches controlling both dynamo and battery currents, and arrangements for stereopticon illustration.

The basement contains a small work shop, the battery, photometer, photographic, and comparator rooms, a clock room protected by double walls against changes of temperature, an acid room, and a water and gas laboratory, provided with the necessary fixtures and appliances.

The first floor, with the exception of one room, is occupied by the physics department. It contains the mineralogical laboratory, which is

provided with tile-covered desks and other facilities for blowpipe analysis; the junior physical laboratory; an apparatus room; a reading and reference room for physical and electrical books and periodicals; an electrical laboratory, from the neighborhood of which masses of iron have been excluded, so that magnetic measurements can be made with a good degree of accuracy; and the physical lecture room, which is provided with all necessary conveniences, as before mentioned. For optical experiments the room can be darkened by means of special window-shutters, operated from one of the lecture desks. A stone pier between the two desks makes it possible to use delicate instruments.

The second floor is given up entirely to the chemical department. It contains storerooms, an organic laboratory, a qualitative laboratory, a private laboratory, a dark room for polariscopic and spectroscopic work, a lecture room provided with facilities as before described, a quantitative laboratory, and a room to contain the delicate chemical balances and most important reference works.

The laboratories are fitted up with the most modern accessories, and with special reference to the kind of work to be performed in each.

THE SHOP BUILDINGS.

The shops have been planned and built with the object of providing facilities for instruction in the working of wood and metals, and in the design, construction, care, and management of machinery. Incorporated with the shops is a central station for furnishing heat, light, water, and power, wherever needed in any of the college buildings; and the machinery of this station forms a part of the material equipment of the engineering departments.

The main shop building is 42 by 106 feet, and two stories high, with a basement 31 by 42 feet. In a separate one-story building, 40 by 100 feet, on a level with the basement of the main building, are the boiler house, forge shop, coal shed, and foundry.

In the boiler room, three boilers, aggregating one hundred and sixty horse-power, furnish steam to all the college buildings, wherever needed for heating or power. A brick chimney 95 feet high has been built to carry away the waste gases from the furnaces. The coal room provides for the storage of two hundred tons of coal conveniently near the boilers.

The basement of the main shop building is used as an engine room, containing a forty horse-power engine, furnishing power for the shops

and for the electric lighting; a dynamo for lighting the college buildings and campus; and the large steam pump, which receives water by gravity from the reservoir one half mile distant and forces it through underground mains to the various hydrants and buildings. The engine room serves as a power laboratory, and the machines mentioned, with others, will give to students opportunity for making efficiency tests.

On the first floor of the main shop building, a lavatory is provided. The largest room on this floor is the machine shop, where there is opportunity for practice in the operations of working metals by cutting tools, both by hand work and by machinery.

The second floor of this building is mainly occupied by a wood shop, in which the common branches of carpentry, joinery, and pattern making are taught. Practice is given in the use of carpenter's tools, and in the care and operation of the machines of most general use in wood-working. A well lighted corner of this room is partioned off, and will be equipped for copying drawings by the blue process. Two office rooms are also provided, one of which will temporarily be used as a recitation room, the other as a drawing room.

The shop buildings are constructed on the "slow-burning" principle, with thick walls and heavy continuous plank floors. The rooms are all well lighted and well ventilated.

APPARATUS, LIBRARY, AND FARM.

The various chemical laboratories are supplied with a full line of such apparatus as is required in each. Besides all necessary glass and porcelain ware, this includes water baths; drying ovens, combustion, muffle, and assay furnaces; platinum dishes and crucibles; polariscope; spectroscope; balances; lantern and other lecture appliances, etc.

The physical laboratory is equipped with a good collection of the usual apparatus for laboratory work and lecture room illustration, to which will be continually added pieces purchased or made in the college shop.

In electricity and magnetism the equipment includes instruments of high precision, and of the latest forms, for the measurement of current electro-motive force and resistance, as well as others of less accuracy for elementary work.

For more strictly electrical engineering work the department has the five-hundred light alternator used in lighting the college buildings, a direct-current "exciter" dynamo, all the apparatus of a complete fifty-five light Edison isolated electric lighting plant, a Sorley storage bat-

tery of twenty-six cells, arc and incandescent lamps, and standard forms of voltmeter, ammeter, and transformer.

The zoölogical laboratory is well supplied with aquaria, microscopes, dissecting tools, charts, reference-books, collections, etc.

The botanical laboratory is supplied with a good herbarium, microscopes, and the other necessary appliances.

The surveying instruments are sufficient in number and of the most approved pattern.

MUSEUM.

The museum had for a nucleus the collections made during the state geological survey. To this additions have been made from various sources. Many specimens are being collected to illustrate zoölogy—especially entomology. It occupies a large, well lighted room in the main building.

LIBRARY.

The library of the college consists of about thirty-five hundred bound volumes besides pamphlets. A considerable part of these are new and expensive books, making good working libraries for the different departments of instruction, including economic science and English and American literature.

Students also have the free use of the Durham public library of about thirty-five hundred well selected volumes.

The college supports a reading-room, which is well supplied with the leading American and foreign periodicals.

FARM.

The farm contains more than three hundred acres of valuable land. It has been provided partly from the funds given by Hon. John Conant and partly from the Benjamin Thompson estate.

It is used for the purpose of an experiment station, for which it is considered by leading agriculturists as being especially fitted.

A model barn has been erected, at an expense of about ten thousand dollars.

SITUATION AND RAILROAD CONNECTIONS

Durham is situated on the western division of the Boston & Maine railroad, sixty-two miles from Boston, and about midway between Newmarket Junction and the city of Dover, being five miles from the latter place.

From nearly every part of the state it is easily reached over the Boston & Maine and Concord & Montreal railroads. Each of these roads sells a transferable, unlimited mileage ticket at the rate of two cents per mile.

PECUNIARY AID AND EXPENSES

Tuition is $60 per year, although numerous scholarships give free tuition to many New Hampshire students. The trustees have arranged the scholarships as follows: There are thirty Conant scholarships, each paying $40 and tuition, $60,—total, $100. These are to be assigned under the following conditions: 1. They are to be given to young men taking an agricultural course; 2. Each town in Cheshire county is entitled to one scholarship, and Jaffrey is entitled to two; 3. Scholarships not taken by students from Cheshire country, and those in excess of the number of towns, are to be assigned to agricultural students at the discretion of the Faculty.

There are twenty-four senatorial scholarships—one for each senatorial district. Each scholarship is to pay tuition, $60. Senatorial scholarships not filled can be assigned to students from other localities at the discretion of the Faculty; they are open to students in all courses.

Early application should be made for these scholarships. They will be reserved for those respective towns and districts until August 1 of each year, after which they may be otherwise assigned for the year.

These scholarships are given for the purpose of aiding deserving students, and will be withdrawn from those who use tobacco or intoxicating liquors, or show themselves not deserving. Janitorships, work on the farm, etc., also furnish assistance to a considerable extent.

Expenses may be estimated as follows:

Tuition	Free	$60.00
Text-books	$10.00	20.00
Library and reading-room tax	6.00	6.00
Room rent, including fuel	18.00 to	40.00
Board $3 per week, for 35 weeks	105.00 to	122.50
Total	$139.00	$298.50

Room rent is estimated on the supposition that two students occupy the same room.

Rooms may be obtained either furnished or unfurnished.

For further information, address President Charles S. Murkland, or Prof. C. M. Weed, Secretary of the Faculty.

AGRICULTURAL EXPERIMENT STATION

This department of the college is provided for by the national government, at an annual expense of fifteen thousand dollars.

The act of congress provides,—

That it shall be the object and duty of said experiment stations to conduct original researches or verify experiments on the physiology of plants and animals; the diseases to which they are severally subject, with the remedies for the same; the chemical composition of useful plants at their different stages of growth; the comparative advantages of rotative cropping, as pursued under a varying series of crops; the capacity of new plants or trees for acclimation; the chemical composition of manures, natural or artificial, with experiments designed to test their comparative effects on crops of different kinds; the adaptation and value of grasses and forage plants; the composition and digestibility of the different kinds of food for domestic animals; the scientific and economic questions involved in the production of butter and cheese; and such other researches or experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable, having due regard to the varying conditions and needs of the respective states or territories.

NESMITH HALL.

Nesmith Hall, a brick building two stories in height, is used for the work of the Agricultural Experiment Station. It contains offices and working rooms, a reference library, a chemical laboratory, a bacteriological and microscopical laboratory, and an agricultural museum.



Nesmith Hall.

BOARD OF CONTROL

Hon. GEORGE A. WASON, *President*	New Boston.
Pres. CHAS. S. MURKLAND, *ex-officio*	Durham.
CHARLES W. STONE, A. M., *Secretary*	East Andover.
Hon. JOHN G. TALLANT	Pembroke.
HENRY W. KEYES	Haverhill.

STATION COUNCIL

CHARLES S. MURKLAND, A. M., Ph. D., *President.*
GEORGE H. WHITCHER, B. S., *Director.*
CHARLES H. PETTEE, A. M., C. E., *Meteorologist.*
ALBERT H. WOOD., B. S.. *Superintendent of Dairy Department.*
FRED W. MORSE, B. S., *Chemist.*
HERBERT H. LAMSON, M. D., *Microscopist and Photographer.*
CLARENCE M. WEED, D. Sc., *Entomologist.*

EDWARD P. STONE, B. S., *Assistant Chemist.*
FRED D. FULLER, B. S., *Assistant in Chemistry.*
FREDERICK W. HOWE, B. S., *Assistant in Chemistry.*
RUEL SEABURY ALDEN, B. S., *Farm Superintendent.*

PRIZE RECORD FOR 1894

SMYTH PRIZES

Given by Hon. Frederick Smyth, of Manchester, N. H.

Speakers:
1st. Fred W. Gunn.
2d. Lewis H. Kittredge.
3d. Frank S. Adams.

Readers:
1st. John L. T. Shaw.
2d. Abbie F. Chamberlin.

BAILEY CHEMICAL PRIZE

Given by Dr. C. H. Bailey, of Gardner, Mass., and E. A. Bailey, B. S., of Winchendon, Mass.

Frederick W. Howe, Hollis.

ERSKINE MASON MEMORIAL PRIZE

Fred W. Gunn, Keene.



Experiment Station Barn.

ENTRANCE EXAMINATION PAPERS*

I. ENGLISH

The composition should be correct in spelling, grammar, and punctuation, and should show a clear purpose and an orderly method.

1. Write at least three pages on one of the following subjects:
   (1.) The Combat between Sohrab and Rustum.
   (2.) Sir Roger at the Play.
   (3.) The School Days of David Copperfield.
2. Correct the errors in the following sentences:
   (1.) The boy stood on the burning deck,
   Whence all but he had fled.
   (2.) I am going and see him this afternoon.
   (3.) He had n't seen what he had ought to do.
   (4.) Get up on to the platform.
   (5.) Try and read as many a good book as you can.
   (6.) I guess he will resign, for he told he was going to.
3. Which is the right expression:

He felt badly at his loss, or, He felt bad at his loss. If you substitute "discouraged" for "badly" or "bad" in the above, what part of speech will it be?

II. AMERICAN HISTORY

1. Give a brief account of the conquest of Peru.
2. What nations held territory in North America during the seventeenth century? What did each nation hold?
3. Give an account of King Philip's War.
4. Give an outline of the French and Indian War.
5. Give a brief but comprehensive account of the Siege of Yorktown (1781).
6. Give a brief account of the adoption of the Constitution.
7. Give the causes and results of the Mexican War.
8. Give a brief account of each acquisition of United States territory.

*Given as specimens of average papers.

9. Give an account of the principal military operations during the year 1864.

10. Explain the Emancipation Proclamation and the Alabama claims.

III. PHYSIOLOGY

1. Explain the structure of the bones. Name in their order those of the limbs.

2. Define the terms, *cartilage*, *ligaments*, *tendons*.

3. Explain the process of digestion. What four solvents act upon the food?

4. How is the blood purified?

5. What is the origin of the nerves that regulate sensation and motion? What the origin of those that regulate digestion?

6. Describe the organ of hearing.

7. Describe the organ of sight.

8. What is the effect of alcohol upon digestion? upon the liver and kidneys?

IV. ARITHMETIC

1. Reduce $\frac{120120}{103740}$ to its lowest terms.

2. Divide $\frac{3}{2}$ of $\frac{5}{6}$ by $\frac{\frac{5}{3}}{\frac{4}{6}}$ and subtract the quotient from $\frac{2\frac{1}{2}}{4-\frac{2}{3}}$

3. How many hectares in a rectangular piece of land 500 meters long and 25 meters wide?

4. The population of a certain city is 100,000. It has gained 20,000; what has been the gain per cent.?

5. Extract the square root of $\frac{6\frac{1}{4}}{2\frac{1}{4}}$ to five decimal places.

6. If 4 men build 19 rods of wall in $2\frac{1}{2}$ days, in how many days will 7 men build 20 rods?

7. A, B, and C formed a partnership, and cleared $12,000. A put in $8,000 for 4 months, and then added $2,000 for 6 months; B put in $16,000 for 3 months, and then, withdrawing half his capital, continued the remainder for 5 months longer; C put in $13,500 for 7 months. How divide the profits?

8. Find the simple, the annual, and the compound interest on $1,000 for 2 years, 5 months, and 7 days, at 6 per cent.

V. ALGEBRA

1. Define algebra, formula, coefficient, power, root, exponent, radical, term, factor, similar quantities.

2. From $3ax^2-(4a-2x)\ (x+2a)+a\ [y-(a+2y)]$ subtract $5a(x-y)+3a^2-2x^2(a+1)$.

3. Multiply $a^2x^{\frac{1}{3}}-3x$ by $b+2x^{-2}$.

4. Divide $4a^2y^8x^{\frac{2}{3}}$ by $-2a^8yx^2$.

5. $4x-5y=10$, and $3x+12y=7$. Solve for x and y.

6. Factor a^8-x^8; a^8+x^8; and a^4-x^4.

7. The sum of two numbers is a, and their difference is b. What are the numbers?

8. Multiply $\sqrt{-x}$, $-\sqrt{-y}$, $-\sqrt{y}$, and $\sqrt{y}$.

9. $\sqrt{x-16}=8-\sqrt{x}$. Solve for x.

VI. PLANE GEOMETRY

1. Define geometry, proposition, theorem, problem, axiom, postulate, corollary, scholium, right angle, perpendicular, parallel, magnitude, and form.

2. Define trapezoid, rhombus, regular polygon, apothem, sector of a circle and segment of a circle. Name and explain the different kinds of triangles.

3. Give expressions for the circumference and area of a circle. State the relations existing between similar areas.

4. Demonstrate that if a perpendicular be erected at the middle of a line, any point in that perpendicular is equally distant from the extremities of the line; also that any point without is nearer the extremity on its own side of the perpendicular.

5. Demonstrate that if two lines are cut by a third, making the sum of the interior angles on the same side of the secant line equal to two right angles, the two lines are parallel.

6. Demonstrate that in the same or equal circles two incommensurable arcs are to each other as the angles which they subtend at the centre.

7. Demonstrate that the opposite sides of a parallelogram are equal.

8. Demonstrate that triangles mutually equiangular are similar.

9. Construct a fourth proportional to three lines.

EXAMINATIONS FOR ADVANCED STANDING

Students passing the examinations in Ancient, Mediæval, and Modern History can take French in place of the History of the first year.

I. ANCIENT HISTORY

1. Describe the Accadian libraries, and explain the manner in which they have been preserved.

2. Give an outline of the story of the War of the Seven against Thebes.

3. Compare the laws of Lycurgus with those of Solon.

4. Describe the different orders of Grecian architecture. Briefly describe the Parthenon.

5. Who were the great tragic poets of the Greeks? Upon what subjects did they write?

6. Give some account of the Stoics and the Epicureans.

7. Name and locate the natural entrances into the basin of the Mediterranean.

8. State the six provisions of the Licinian laws. Which provisions were effective?

9. Give an outline of the history of the second Sammite War.

10. Locate and, with a sentence for each, describe the following: Olympia, Ægina, Delphi, Thebes, Tarentum, Pannonia, Numidia, Etruria, Mauritania, Sardinia.

II. MEDIÆVAL HISTORY

1. Give an outline of the history of the kingdom of the Ostrogoths.

2. Explain the meaning of each of the following words: Janizaries, reliefs, escheats, aids, villeins.

3. What were the characteristics which distinguished the early Teutons?

4. Give an account of the Third Crusade.

5. In one hundred words give the history of Spain from A. D. 700 to A. D. 1500.

6. In the same number of words give the history of the Wars of the Roses.

7–8. Describe the following, using about fifty words for each: Tamerlane, Warwick (the "king-maker"), Simon de Montfort, Huss.

9. Give an account of cathedral building.

10. Draw a map showing the political divisions of Europe at the close of the Middle Ages.

III. MODERN HISTORY

1. Explain the causes that checked the progress of the Reformation.

2. Give an account of the Battle of Lepanto.

3. Give an account of the religious changes which took place in England during the Tudor period.

4. Give the history of the siege of Leyden.

5. Give an account of Catherine de Medici.

6. Give the history of the war undertaken by Louis XIV against Holland.

7. Give an account of the English revolution of 1688.

8. Give a brief account of each of the revolutions in France since 1815.

9. Give an outline of the history of the unification of Italy.

10. Draw a map showing the south-eastern part of Europe and the present political divisions.

CATALOGUE OF GRADUATES

NOTE.—The arrangement is : (*a*) Name in full. (*b*) Degrees taken. (*c*) Residence at time of entering college. (*d*) Occupation, etc. (*e*) Present residence.

1871.

William Preston Ballard, B. S., Concord. Farmer. *Concord.*
Lewis Perkins, B. S., Hampton. Civil Engineer.
North Adams, Mass.
Charles Henry Sanders, B. S., Penacook. Architect and Merchant.
Penacook.

3—

1872.

Edwin Bartlett, B. S., Bath. Farmer. County treasurer, 1883.
Kinsley, Edwards Co., Kan.
Frank Alexander White, B. S., Bow. Farmer. *Bow.*

2—

1873.

Frederick Erasmus Eldredge, B. S., Kensington. Lawyer.
Tacoma, Wash.
James Fred Smith, B. S., A. M. (1885). Instructor in Iowa College.
Grinnell, Iowa.
Charles Henry Tucker, B. S., Plaistow. Carriage Maker.
Amesbury, Mass.

3—

1874.

Millard Fillmore Hardy, B. S., Nelson. Graduated Theo. Inst. Ct. 1878. Clergyman. *Harrisville.*
Henry Abbott Sawyer, B. S., North Weare. Business. *North Weare.*

2—

1875.

Walter Herman Aldrich, B. S., M. D. (Univ. N. Y. City, 1880), Troy. Physician. *Marlborough.*
Frank Pierce Curtis, B. S., Stoddard. Manager of Store.
Greenfield, Mass.

Frank Veranus Emerson, B. S., Lebanon. Manufacturer.
East Lebanon.

Charles Webster Hardy, B. S., M. D., (Mo. Med. Coll., 1881), Marlborough. Physician. *Waterville, Kan.*

Harvey Jewell, B. S., Winchester. Farmer. *Winchester.*

Charles Ormille Leavitt, B. S.,* Lebanon. Farmer. Died 1877.

John Loney McGregor, B. S., D. D. S. (Phila. Dental Coll., 1877), M. D. (1883), Whitefield. Physician. *Whitefield.*

Eliel Peck, B. S., Lebanon. Farmer and Printer, 1875–'80. Merchant. *Kimball, Minn.*

Ira William Ramsay, B. S., Walpole. Farmer. *Walpole.*

Orlando Leslie Seward, B. S., Keene. Architect. *Keene.*

Emery Mason Willard, B. S., Harrisville. Drug Clerk.
15 *Union St., Boston, Mass.*

11—*1

1876.

Herbert Cyril Aldrich, B. S., Troy. Insurance Agent. *Keene.*

Edmund Lawson Brigham, B. S., Jaffrey. Manufacturer.
Clinton, Mass.

Joseph Warren Butterfield, B. S., Westmoreland. Farmer.
North Montpelier, Vt.

Arthur Frank Chamberlain, B. S., Westmoreland. Commercial Traveller. 6543 *Woodlawn Park, Chicago, Ill.*

Anson Ballard Cross, B. S., Holyoke, Mass. Paper Maker.
Readsborough, Vt.

Warren Webster Kimball, B. S., Troy. Merchant. *Troy.*

Daniel Deeth Parker, B. S., Fitzwilliam. Manufacturer.
Gardner, Mass.

7—

1877.

Rollin Kirk Adair, B. S., Indian Territory. Farmer.
Locust Grove, Cherokee Nation, Indian Ter.

Homer Brooks, B. S., M. D. (N. Y. Hom. Med. Coll., 1881), Franconia. Physician. 342 *Washington St., Haverhill, Mass.*

John Washington Carson, B. S., Mont Vernon. Farmer.
Mont Vernon.

Charles Otto Chubert, B. S.,* Troy. Died.

Charles Albert Edwards, B. S., LL. B.* (State Univ., Iowa, 1880), Keene. Lawyer. Died, 1886.

William Francis Flint, B. S., Richmond. Farmer. *Winchester.*

Clinton Camillus Hall, B. S., Westmoreland. Farmer.
East Westmoreland.
John Goodrich Henry, B. S., M. D. (1880), Chesterfield. Physician.
Winchendon, Mass.
Charles Pitkin Hollister, B. S., North Montpelier, Vt. Farmer.
North Montpelier, Vt.
George Mirick Holman, B. S., M. D., Fitchburg, Mass. Instructor in Bryant & Stratton's Commercial College. *Boston, Mass.*
Charles Appleton Hubbard, B. S., Troy. Clerk. *Newton, Mass.*
Charles Augustus Wheeler, B. S., East Calais, Vt. Farmer.
Bracken, Coral Co., Texas.
Everard Whittimore, B. S., Fitzwilliam. Merchant. *Hudson, Mass.*

13—*2

1878.

Ezra Eastman Adams, B. S., Manchester. Auctioneer.
237 *and* 249 *Monroe St., Chicago, Ill.*
Elmer Kilburn, B. S., C. E.,* Marlow. Civil Engineer. Died, 1881.
Charles Edward Record, B. S., Fitchburg, Mass. Farmer.
Fitchburg, Mass.

3—*1

1879.

Charles Hardy Bailey, B. S., M. D. (1881). Physician.
Gardner, Mass.
Richard Clinton Chapin, B. S., Chicopee, Mass. Agent for Nonotuck Paper Company. *Holyoke, Mass.*
Lucius M. Cragin, B. S., Lempster. Farmer. *Springfield, Vt.*
Nathaniel Cutter Holmes, B. S.,* Amherst. Lawyer. Died, 1887.
Fred Charles Parker, B. S., Lempster. Merchant. *Acworth.*
George Henry Wilkins, B. S., M. D. (N. Y. Hom. Med. Coll., 1883), Amherst. Physician. *Palmer, Mass.*

6—*1

1880.

Charles Harvey Hood, B. S., Derry. Farmer. *Derry.*

1—

1881.

Edwin Thomas Aldrich, B. S., Troy. Insurance Clerk. *Keene.*
Henry Lyman Barnard, Troy. Clerk. *Troy.*
George Jordan Boardman, B. S.,* Lawrence, Mass. Medical Student. Died, 1886.

Edwin Franklin Bristol, B. S., Harwinton, Conn. Mechanic. *Ascutneyville, Vt.*

Artemas Terald Burleigh, B. S., Franklin. Merchant. *Tilton.*

Frank Dana Ely, B. S., Cavendish, Vt. Business. *Cavendish, Vt.*

Sanford Eugene Emery, B. S., LL. D. (Albany Law School, 1886). Proctorsville, Vt. Lawyer. *Proctorsville, Vt.*

Charles Herbert Hazen, B. S., Hartford, Vt. Farmer. *Hartford, Vt.*

Frank Marston, B. S., Hartford, Vt. Business. *Olcott Falls, Vt.*

William Augustus Megrath, B. S., M. D. (1885), Cavendish, Vt. Physician. *Loudon.*

Fred Townsend Stanton, B. S., Strafford. Farmer. *Strafford Corner.*

Victor Hugo Stickney, B. S., M. D. (1883), Tyson, Vt. Physician. *Dickinson, Dak.*

Samuel Austin Wallace, B. S., Ph. G. (Boston School of Pharmacy, 1886), West Hartford, Vt. Druggist. *Crookstone, Minn.*

George Herbert Whitcher, B. S., Strafford. Professor of Agriculture, and Director of Experiment Station. *Durham.*

14—*1

1882.

Harvey Lincoln Boutwell, B. S., LL. B. (Boston Univ., 1886), Hopkinton. Lawyer. 209 *Washington St., Boston, Mass.*

Dana Justin Bugbee, B. S., North Pomfret, Vt. Agent for Publishers. *North Pomfret, Vt.*

Robert Fletcher Burleigh, B. S., D. V. S. (Am. Veterinary Coll., 1885), M. D. (1887), Franklin. Instructor in Veterinary Science, 1885–'88. Professor of Physiology and Veterinary Science, Kansas State Agricultural College, 1888–'89. Physician. *Rochester.*

La Forrest John Carpenter, B. S., Surry.

Edwin Preston Dewey, B. S., Hanover. Civil Engineer. *Malden, Mass.*

George Andrew Loveland, B. S., LL. B. (Univ. of N. Y., 1886), Norwich, Vt. Weather Bureau. *Crete, Neb.*

John Wright Mason, B. S., Hanover. Business. *Des Moines, Iowa.*

Harlan Addison Nichols, B. S., Derry. Weather Bureau. *Colorado, Texas.*

Frank Elmer Thompson, B. S., Stark. Lumberman. *Ridgeway, Penn.*

9—

1883.

Elmore Ferdinand Arnold, B. S., M. D. (Univ. City N. Y., 1885), Londonderry, Vt. Physician. *Londonderry, Vt.*

Frank Landor Bigelow, B. S., Proctorsville, Vt. Instructor in Mathematics and Sciences, Goddard Seminary, Barre, Vt., 1883–'86. Business. *Rutland, Vt.*

Frederick Stocks Birtwhistle, B. S., Troy. With American Consulate. *Cartagena, Colombia, S. A.*

Noice D. Bristol, B. S., Harwinton, Conn. Clergyman. *Hamilton, Kan.*

Fred Plummer Comings, B. S., Lee. Teacher. *South Yarmouth, Mass.*

Frank Harry Follansbee, B. S., Canaan. Railway Mail Clerk. *Canaan.*

Adams Clark French, B. S., Franklin Falls. Theological Student. *Chicago, Ill.*

James Edgar Gay, B. S., Tunbridge, Vt. Woolen Manufacturer. *Cavendish, Vt.*

Elmer Daniel Kelley, B. S., Franklin Falls. Farmer. *Franklin Falls.*

Alvah Benjamin Morgan, B. S., Canaan. Drug Clerk. *Lebanon.*

William Lincoln Whittier, B. S., Deerfield. Farmer. *Deerfield.*

Charles Minot Woodward, B. S., Hanover. Instructor in Agriculture, 1883–'84. Teacher. *Corsicana, Texas.*

12—

1884.

Ernest Smith Cummings, B. S.,* Lee. U. S. Signal Service. Died 1886.

Fred Carlos Davis, B. S., South Reading, Vt. Lawyer. *Springfield, Vt.*

Sylvester Miller Foster, B. S., Riverhead, L. I. Insurance Agent. *Riverhead, L. I.*

Herbert Harvey Kimball, B. S., Hopkinton. Weather Bureau. *Washington, D. C.*

Moses Bisbee Mann, B. S., Benton. Custom House Official. 74 *Upham St., Malden, Mass.*

George Milton Moore, Plymouth, Vt. Merchant. *Tyson, Vt.*

Ziba Amherst Norris, B. S., Lyme. Merchant. 1677 *Washington St., Boston, Mass.*

Edwin Chapin Thompson, B. S., Lee. Weather Bureau. *St. Paul, Minn.*

8—*1

1885.

George Ellsworth Adams, B. S., Weston, Vt. Weather Bureau. *Fort Duchesne, Utah.*

Ruel Seabury Alden, B. S., Lyme. Superintendent of College Farm. *Durham.*

Walter Eugene Angier, B. S., C. E. (1887), West Swanzey. Civil Engineer. *Memphis, Tenn.*

Edward Alonzo Bailey, B. S., West Swanzey. Attendant in Insane Asylum. *Winchendon, Mass.*

Phillips Greenleaf Bickford, B. S., Lyme. Teacher. *Farmington, Wash.*

Andrew Walter Brill, B. S., Riverhead, L. I. Seedsman and Florist. *Floral Park, Queens Co., N. Y.*

Paul Cuff Brooks, B. S., Boston, Mass. Clerk. 25 *Westminster St., Boston, Mass.*

Frank Jay Emerson, B. S., Epping. Clerk. *Portsmouth.*

Allen, Hazen, B. S., Hartford, Vt. Chemist of State Board of Health. *Lawrence, Mass.*

George Mayo Mullins, B. S., Londonderry. Farmer. *North Londonderry.*

Albert Henry Wood, B. S., Lebanon. Associate Professor of Agriculture. *Durham.*

11—

1886.

Frank Albert Davis, B. S., South Lee. Weather Bureau. *Boston, Mass.*

James Ellsworth Harvey, B. S., Surry. Photographer. *Surry.*

Belezar Stoianoff Ruevsky, B. S., Sistova, Bulgaria. Student of Veterinary Science. *Sistova, Bulgaria.*

Madison Templeton Thurber, B. S., Webster. Physician. *Grafton.*

Edward Hills Wason, B. S., New Boston. Lawyer. *Nashua.*

George Pillsbury Wood, B. S., Lebanon. Civil Engineer. *Roanoke, Va.*

6—

1887.

William Sprague Currier, B. S., Norwich, Vt. Weather Bureau. *Cleveland, Ohio.*

Arthur Woodbury Hardy, B. S., C. E. (1889), Hopkinton. Civil Engineer. *City Engineer's Office, Salt Lake City, Utah.*

George Albert Sanborn, B. S., Rochester. Teacher. *Rochester.*

Hiram Newton Savage, B. S., White River Junction, Vt. Engineer of San Diego Land Improvement Co. *National City, Cal.*

Bion Leland Waldron, B. S., Strafford. Weather Bureau. *Galveston, Texas.*

5—

1888.

Melvin Burnside Carr, B. S., North Haverhill. *Boston, Mass.*
Herbert Grant Davis, B. S., South Lee. Thomson-Houston Co.
Lynn, Mass.
Edwin Chandler Gerrish, B. S., Webster. Civil Engineer. Office of Locks and Canals. *Lowell, Mass.*
William Nelson Hazen, B. S., C. E. (1890), Hartford, Vt. Civil Engineer. *East Berlin, Conn.*
Edward David O'Gara, Hanover. Farmer. *Hanover.*
George Elmer Porter, B. S., M. D. (1892), Hartford, Vt. Physician.
Chatham, Mass.
George Jonathan Sargent, B. S., Canterbury. Civil Engineer. Office of Locks and Canals. *Lowell, Mass.*
John Warren Smith, B. S., Grafton. Weather Bureau. *Boston, Mass.*
George Elwin Walker, B. S., Littleton. Farmer. *Littleton.*

9—

1889.

Fred Harvey Colby, B. S., Hopkinton. Civil Engineer.
Zillah, Yakima Co., Wash.
Linwood Carroll Gillis, B. S. Editor and Publisher. *Hanover.*
Louis Jerome Hutchinson, B. S., Norwich, Vt. Electrician.
Boston, Mass.
John Lawrence Norris, B. S., Lyme. Clerk.
1677 *Washington St., Boston, Mass.*
Charles Walter Earl Scott, B. S., Winchester. Clerk. *Winchester.*
David Elmer Stone, B. S., Hartford, Vt. *Durham.*
Fred Washburn, B. S., West Springfield. Business. *Laconia.*

7—

1890.

John Young Jewett, B. S., Gilford. Civil Engineer. *Lakeport.*
Joseph Franklin Preston, B. S., Hanover. Clerk.
570 *Columbus Ave., Boston, Mass.*
Elihu Quimby Sanborn, B. S., Webster. Machinist.
Clarence Ira Slack, B. S., Norwich, Vt. With Vermont Marble Co.
West Rutland, Vt.

4—

1891.

Ernest Gowell Cole, B. S., Hampton. Merchant. *Hampton.*
Russell Marden Everett, B. S., Chester. Teacher. *Dover, N. J.*

Edward Payson Stone, B. S., Canaan Centre. Assistant Chemist of Experiment Station. *Durham.*

3—

1892.

Percy Lovejoy Barker, B. S., Milford. Civil Engineer. *Hanover.*

Fred Driggs Fuller, B. S., Hanover. Assistant in Chemistry, Experiment Station. *Durham.*

Arthur Bennerzett Hough, B. S., Lebanon. Farmer. *Lebanon.*

Edward Monroe Stone, B. S., Marlborough. Civil Engineer. *Hanover.*

4—

1893.

Wilton Everett Britton, B. S., Keene. Horticulturist, Experiment Station. *New Haven, Conn.*

Frank John Bryant, B. S., Enfield. Teacher. *Enfield.*

Charles Elbert Hewitt, B. S., Hanover. Post Graduate Student in Electrical Engineering. *Cornell University, Ithaca, N. Y.*

Charles Lincoln Hubbard, B. S., Fitzwilliam. Draughtsman. *Providence, R. I.*

Orrin Moses James, B. S., Northwood. Civil Engineer. *Northwood Narrows.*

Arthur Whitmore Smith, B. S., Norwich, Vt. Post Graduate Student. *Wesleyan University, Middletown, Conn.*

6—

1894.

Bert Sargent Brown, B. S., Hanover. Foreman. *St. Johnsbury, Vt.*

Fred Willis Gunn, B. S., Keene. Student at Y. M. C. A. Training School. *Springfield, Mass.*

Frederick William Howe, B. S., Hollis. Assistant in Chemistry, Experiment Station. *Durham.*

3—

SUMMARY

Graduates, 1871–'94, inclusive (living, 146, dead, 7)	153
Agriculturists	30
Architects	2
Business pursuits	39
Chemists	3
Clergymen	2
Civil and Mechanical Engineers	11
Electricians	2
Lawyers	5
Manufacturers and Mechanics	8
Physicians	13
Post Graduate Students	7
Teachers	10
Unclassified	2
Unknown	2
Weather Bureau	9
Twice classified	2
Students in attendance, 1894–5	163
Number connected with college, 1871 to 1893, inclusive	432

CALENDAR.

1894.

JULY.

S.	M.	T.	W.	T.	F.	S.
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1895.

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1895.

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COMMENCEMENT ADDRESS

THE NEW IMPULSE IN EDUCATION

BY

HON. EDWIN WILLETS, WASHINGTON, D. C.

DELIVERED JUNE 6, 1894

COMMENCEMENT ADDRESS

BY HONORABLE EDWIN WILLITS, WASHINGTON, D. C.

The New Impulse in Education.

The world at this date has not agreed upon the requirements of a good education. Who taught Shakespeare grammar? Whence came his marvelous command of the English language? The librarian of one of the largest libraries in the country, himself a classically educated gentleman, recently remarked that he had seen and read more than five hundred, and had in his possession more than one hundred, letters written by Henry Clay, and that he had never found a false sentence or a mispelled word. Whence got he that accurate and persuasive diction? This same gentleman had read more than one hundred letters of Andrew Jackson; all were perfect in punctuation, in grammar and in rhetoric, and among them all he found but one mispelled word. Who taught him grammar or rhetoric? Clay was admitted to the bar before a copy of Lindley Murray's grammar reached these shores, and Andrew Jackson had become one of our most vigorous and renowned lawyers west of the Alleghanies before Murray issued his first edition. What library or museum has at this day a dog-eared copy of a grammar or rhetoric used or studied by Abraham Lincoln? Where is the evidence that Lincoln could parse a single sentence according to rule; and yet his fifteen minutes' speech at Gettysburg will be classic in literature long after the world shall have forgotten that it was preceded by a nearly two hours' oration by Edward Everett, in studied phrase and sounding periods.

Many hard questions are being asked at this time and the mood is willing, if not pliant. Why is it that from the time of Plato down, education has been essentially linguistic, including Latin, Greek, Grammar, Spelling, Orthography, Rhetoric,

Literature, Logic, Elocution, Oratory? The only competitor has been Mathematics, and that to only a moderate degree. It has been practically conceded that numbers and letters were the essential basis of mental discipline. But what is discipline? "The best study of mind is mind," was the motto. "Know thyself" was the range and scope of human effort. In all ages the boy was sent to the master of rhetoric, or to walk with some philosopher, to learn to speak fluently, and to reason and speculate cogently. This was discipline. The highest aspiration was to be a talker; the greatest man was the orator. Next to them was it to be a writer. We have not quite got over that feeling in this age.

Somehow the impression prevails that all other callings are menial. Let us canvass the reason for this.

1. In the first place, our literature is full of it. Why not? Literature lives by literature, and it should magnify its office. So from the first dawn of intellectual life the child learns that poetry and rhetoric and logic and thought and sentiment are of a higher plane than all else. Everybody sometime in his life drinks at the Pierian spring. There is a fascination in the power of an orator. I asked a man worth three millions, on the floor of congress, just after a fifteen minutes' speech by a noted public man, what he would give to be able to make that speech. "Give," said he, with all the humility of a man low down in the scale of being, "Give! I would give you a third of all I am worth." One young lady goes into the marriage market with no capital but her beauty; another with nothing but a substantial bank account. Literature rates the one high; the other low. Why? They both have commodities for sale and generally sell them very cheap. I cannot stop to enumerate all the fine distinctions and grades of what is high and what is low in literature and poetry, what is noble and what is menial; but it may be that we have not had a sensible judgment by an impartial, well equipped judge.

2. Somehow the world has the notion that as talking and writing are mental exercises, all other intellectual exercise is material and of a grosser type. Thought is divine; hence the mental philosopher is godlike!—all others are of the earth, earthy. Now I grant the divine essence of thought; it is the

life that is like unto that of Jehovah. But Jehovah did not sit on his throne and complacently study himself. He projected himself into creation and all along the footsteps of his work he established law and order and harmony. His mind went into his works, and it is found there to-day as truly in the material universe as in man's mental endowments. Who shall say that the man who follows the line of God's thought in his material universe has not the stars under his feet as truly as the man who seeks to understand the laws of his own mind? They are both God's laws, and their proper study is as noble in the one as in the other. The creation is the fruitage of Divine energy, and the man who enters it and traverses in a measure its development, and listens to the general symphony of its manifestations is on as high a plane as he who hides himself in his own personality, who tries to determine how sense becomes perception and reason becomes judgment. Who shall say that there is not discipline—mental discipline—of as high a grade in the one as in the other? Who shall say that Herschel and Newton and Gallileo and Kepler and Davy and Faraday, Watt and Stephenson were not as highly endowed mentally as a master of rhetoric or a propounder of syllogisms. The fallacy of the position so long and so persistently maintained by the schools is in the misconception that thought finds expression only in language, and that therefore its highest function is in talking. George Washington could not make a speech but he could command an army, found a nation, give sound advice, and die worth nearly a million of dollars. His line of thought was not exactly that of the typical college president, but the world will give him a reasonable share of intellectual credit. Napoleon shook every throne in Europe, but back of his thundering squadrons was a mind as active, as well poised, and as well disciplined as those of the most learned linguists in his dominions. These two men saw the relation of things and utilized them. In their respective spheres they shaped events with a purpose and with forethought, and not by chance.

So in the domain of science the best thoughts of the best men of the world have found full scope. The linguist sees only the gathering of a few sporadic facts, as isolated as the grains of a bag of sand, but another man with a ken almost divine will

hitch these facts together and find a law that binds the fact to the throne of God. This law has discipline in it, and every time a man has struck it he has been raised head and shoulders above the common head of rhetoricians and metaphysicians. Aristotle made a machine that facilitated the hitching of these facts together so as to find the law, and Bacon improved upon it. Sometimes these can evolve the law out of their own imaginations and hunt up the facts to demonstrate it. One of the most pleasing incidents in my early manhood was the stringing of the cable of the first suspension bridge across the Niagara river. You will recollect that a kite was used first to draw over the slender thread, which drew another larger, and that a larger one still, till finally the strong cable hung from shore to shore, bridging the mighty chasm; in the same way these men of science send across into the unknown beyond their slender thread and pass over it, fact after fact, till they find that their tentative thread is a law, as strong as the sinews of the Almighty. Again other men with less imagination hitch together their facts that seem in some way to have a relation to one another, spinning them out as the spider does his web into the unknown and the impassable, till like the same web blown by the breezes in the darkness it strikes something to which it fastens, and lo, a law fastened to the throne of God! Here are the induction and deduction of the subject, and there is discipline in them—reason, but no rhyme; thought in its highest and truest sense, but not in set phrases of the dialectician, who assumes a superiority not warranted by the results. No law of nature is in essence gross; otherwise the Creator of the law must himself be gross. A man who walks with God through his material universe is good company for anyone, and the world is taking him into good society at last.

There has been a great change in public sentiment on this subject in the last fifty years. What shall constitute a true education? The old cast iron plan of the classics and metaphysics has been broken, and the world is beginning to appreciate the fact that there is mental discipline in the study of the sciences, and at least for the age, as good discipline; that while in a sense it is different, there is as much vital strength and as much real breadth as in the old plan.

Not only this, but in the last twenty-five years men have begun to question purely intellectual education. There is a growing sentiment that the hand should be educated as well as the mind; and that in that education the mind would lose nothing of its native power, but would bring to its aid a skilled coadjutor. This means that manual labor is to be coveted, and not scorned.

A HOBBY.

Now, if I have a hobby it is in line with this changed sentiment. I am out of patience with this snobbish scorn for manual labor. I have a warm heart for a handy fellow, who can set up a bedstead with facility, or put up a stovepipe without profanity. What a helpless set of people we Americans are likely to become, if we do not put our hands to work as well as our wits; dependent upon importing our artisans and our hired girls. To be just, however, we must not be too sweeping. Our farmers still believe in good, wholesome, daily toil. That is the reason why the farmer's boy comes to the front in the city; why, from the farm are born into civic life the kings of commerce and the royal lineage of law, letters, and theology.

THE FARMER.

I hope it is not out of place on this auspicious occasion, and in the shadow of this institution, founded as it is to-day, to speak a few words about the farmer; not to make a plea for him; he does not need it; but to state a few facts.

1. In the first place, every man has a right to be a farmer; it is his natural right. Farming was mankind's primary right and, like all primary rights, it is fundamental. The world could get along after a fashion without kings and princes, lawyers and merchants, poets and, perhaps, priests, but let the world's agriculture be blasted and mankind would disappear as the snow flake in Mother Earth.

2. It is no disgrace to be a farmer. There is no disgrace in the proper exercise of a natural right. A man has no natural right to steal; therefore a thief is discarded from decent society. No man has a natural right to make another man a drunkard.

He who does so deliberately is marked with infamy. His occupation is disgraceful and always has been; policed, licensed, prohibited, regulated, discouraged. Not so with the farmer. The world has never policed, licensed, or regulated him. The sun shines in regal glory around his labors and the rain falls in benediction upon his fields. There is no disgrace there, but steady, honest co-operation with nature.

3. A farmer need not be a fool. Agriculture in the long ages has had to endure very much of ignorance, but nothing so much indicates its vitality as that it has survived the imposition. Agriculture and the Church have taken to their motherly bosom many crippled sons of Adam, but because in their maternal love they have not driven them forth, it is wrong to infer that they are the dumping ground for imbecility. It is the stock sneer of men who never, if they could help it, did a square day's work in their lives, to depreciate farming; any worthless cub, in their estimation, is good enough to be a farmer; while it is apparent to all candid minds that there is not in the whole universe of mind and matter, a field of wider scope for the best intellects than agriculture.

The time has come, so far as agriculture at least is concerned, to repel the sneer; and this generation has taken the work in hand to place the farmer in the position to which he is entitled. Heretofore asceticism has had its run through the farmer's house as well as in society. The farmer boy has heard it more than hinted that there is a higher life, an easier life, than the life on the farm. It matters not that nine tenths of these find, all too late, that it is a mistake; the old ascetic's notion that he who works the soil becomes gross, and that the less one has to do with it the more he attains the "All Soul," that has come down through the ages. We have superstitions, and impulses in our blood a thousand years old. This is one of them that has crawled out of a cloister. Heretofore, the so-called learned professions have had the right of way in literature; but today some of the keenest minds and sharpest pens are enlisted in the cause of labor on the farm and in the shop.

THE ARTISAN.

This reference to "the shop" has a significance at this time

that almost equals that relating to the farm. This generation has sent a large block of our population from the country to the city. It is fortunate for the city that so large a proportion of its increasing numbers is from the country. It is the country blood that gives health to the city life. But this large increase of city population has its problems and its perils. The farmer's son who leaves the green meadows for the golden pavements has industry and vigor and integrity. He is generally safe and sure. But what of the farmer's city grandson? What shall he do? The chances are that he has no habit of industry, and instead, a scorn for work. No trade or occupation and no will to acquire one, or will to exercise it, if he had one. He lives by his wits. His education has sharpened his wits without supplying the proper motive and the proper object upon which to operate. The result is, he preys upon society.

Our prisons are filled with occupationless intelligence. Give the city boy something to do, systematic, daily labor, and take him off the sidewalk, and you will, or may, diminish your prisons one half. Give him something that requires skill and intelligence. Busy fingers rarely steal. Sin of all kinds is the product, generally, of the unoccupied mind and heart and hands of man. If St. Anthony had washed himself, at least, once a week, had taken off his hair shirt and had turned his cell into a workshop, he would have seen no devils to fight. The best way to cool off a passion or control an appetite is to side track it into some laudable industry. This generation is waking up to the subject and from all quarters is coming up the demand that the state shall encourage labor, for labor's sake, on the farm and in the shop; the demand that society shall throttle the ascetic notion that manual labor is unmanly. It is a mistaken idea that learning a trade is not education, that the ability to work at some useful occupation does not enter into and compose an essential part of a man's intelligence. You remember what Ruskin says: "A boy cannot learn to make a straight shaving off a plank or drive a fine curve without faltering, or to lay a brick level in the mortar, without learning a multitude of other matters which lip of man could never teach him." A man that can shoe a horse well knows

more than the man holding the bridle. Skill is intelligence applied, and applied intelligence counts for more in the world than stores of knowledge unapplied. Give a man both knowledge and skill and you have a well-rounded intelligence; these, with a moral and religious training, will do much to keep him outside the prison walls, outside the criminal class.

But it is said that this new movement ignores culture. I deny it, when properly understood. There is to be cultivated intelligence in the new order of things. There may be, and it would be no great loss if there be, less of the lackadaisical, thin blooded, so-called culture, which has always preceded degeneracy. A broad-chested culture should be the companion of a virile race.

WHAT IS CULTURE?

The crude, uncultivated man is a waster of energy. Nature is exhaustless in power and resources, prolific in products and wasteful beyond computation. It takes a million acorns to make a single oak. A single pair of plants or insects, if given free fecundity, would not leave standing or living room for any other living thing. So nature is an exterminator as well as a producer. Progress is what is spared from extermination. Culture aids the sparing. Barbaric and half-civilized men killed more men in battle with clubs and spears and swords than the gatling gun of modern warfare. Codes and culture go hand in hand. Even the prize ring howls down the man who hits below the belt.

Culture is the gloved hand—it is the power without the laceration. Culture is an economist—it saves blood and with blood, life. But life has a voracious appetite and must eat or starve; so in the end nature as an exterminator would bring about equilibrium and no progress would be attained. What sense in hospitals and asylums, in aid societies and humane organizations if the magazines are empty? Better knock the aged and crippled and leprous in the head at once and save the supplies for the sound in body. There are just as many deaths in this world as births—what matters it to save or prolong life, if in the end nature restores equilibrium in spite of

culture? True, but saved and prolonged life adds to the stock on hand at any given time, and with it so much more of potentiality and possibility.

Culture, then, having increased life and wants, has assumed the responsibility of increased production. Now culture is not a creative faculty. It is simply an assistant to Nature and genius. It takes them by the hand and leads them to the best results. There is, some one has said, "always the best way of doing everything if it is but to boil an egg." Culture digs up the soil, waters the roots and increases the production many fold. It lubricates the machinery and the busy hum of the shop sings with an inspired joy over the birth of a new power. It grades down highways so that this increased production may come together and exchange wants and good wishes, and by these means leads man into higher life.

Neither is culture a negative quality, vapid, inane; it is health and good order. To begin with, it is a respecter of the rights of others. Nature has no regard for rights. There is eternal enmity between sticks and stones, rocks and stream, earth and sea, fire and water, big fishes and little fishes, wolf and lamb, hawk and bird; and of all things man is the most vicious. He not only destroys his fellows but he destroys himself—his appetite leads him captive to an untimely grave. Culture steps in and says: "Hands off—off from property, from life, from crime and vice," and the destruction is stayed. There is no creation here, but a saving of energy and production. The economy of equal rights has never been weighed or measured. Its history is that of civilization. Its history has never yet, in my judgment, been properly and justly written, for the reason that publicists have based progress too much on force. and political ethics on policy and material wealth. Force is not culture; wealth is not civilization. I protest against the brute element in our histories, and the mathematical tendencies in the literature of our political economists. Conscience has no more place in either than in a demonstration of mathematics. There was a sense of right before there was a law against larceny. Force did not make the law. I grant you force enforces it, but robbers never made a law against robbing. Force can quell a man, but it never converts him. It diminishes crime, it is true,

by the terrors of its penalties, but conscience and culture diminish it ten-fold more by withholding the hand from the criminal act. The shame of vice in the presence of virtue, the getting behind screens and into dark alleys, the putting on of seeming virtue in the presence of good society, is a deference to the majestic power over man which conscience and culture sway.

Two men meet on a public highway, with equal rights to the common path. In the "olden time" they would have gone at one another with club or sword as fiercely as two mad bulls upon the western prairie, to prove who might be the better fellow. To-day each instinctively turns to the right and passes with a "God speed thee, brother." This is not from fear or force. Neither is armed, neither thinks of strife. Custom, but another name for culture, controls the act, and the custom is based upon the sense of equality and equal rights, the right of way for every human being on the globe. The fact that it is a highway and not a war-path is due to civilization, the culture of the ages. Yet we have philosophers who resolve all this chance, this so-called culture and civilization, into force and self-interest. Who thinks of force and self-interest in benevolence, in giving every man his due in full measure, in equal rights, in telling the truth, in the tear of sympathy, in the voice of affection, in the deference to old age, in the thousand and one acts that culture has made so easy and so spontaneous? Habit, they say, has made them easy and spontaneous. Well, call it habit if you will ; that is but another name for culture, the constant holding up of truth and right before the mind till they are mirrored in the soul—till self interest and force, if they ever existed, have been eliminated from human thought and human motive. I prefer to believe that the good qualities of our being have been cultivated, have been tilled, have been dug around, fertilized and watered till there has been a harvest of culture, of good for the sake of good, of justice because it is right; that it is, as Emerson says, "The suggestion of best thoughts," instead of the demonstration of selfishness.

Of course, all these manifestations of the finer sensibilities pay in the long run, and Poor Richard can well say that "Honesty is the best policy," but the better and sweeter fruits

grow in the life that exemplifies this condition of culture without a thought of policy. Then there is evidence of culture. As soon as it smacks of tariff, of the shop, of policy, it is greed not culture. They pay, not because they are politic, but because they are in harmony with truth and truth elevates.

This culture is the unwritten law that compels society to do the right thing, at the right time, in the right way. Its order is an impulse rather than a law. When it has become a second nature, if by chance it never was first nature, it raises the race barbarism to civilization—the whole plane of manhood is elevated.

This general culture, then, is not a matter of a day nor an age. The elements of a constitution are to be found in the first glimmer of history. Our constitution, written little over a century ago, in many of its essentials is so old that the memory of man runneth not to the contrary. Law and liberty, culture and civilization, have come to us hand in hand, almost with equal pace. In the rapacity of the race, in the blood and wrong, in the fierce struggle for dominion, in the contest between peasant and baron, king and noble, in the dark hours of the darkest night, to humanity and human rights, amidst all, there comes down to us the occasional gleam of a better life, a brighter hope, as the harbinger of the peace and good will to all men that sometime is and was to come. May we help the advent of that glorious day by each one's attention to our personal culture, so that in the aggregate there shall be shining particles enough to golden the mass.

Much has been said and written about the means of culture. Some attribute its growth to the cultivation of letters, some to the study of man as man. So far as literature has preserved the best thought of men, it has furnished the soil for an increased product of cultured thought. Reason and memory are the primal faculties that distinguish us from the brute creation. Literature has embalmed them for the future. Aristotle invented the tool which has been a labor-saving machine in the region of classified thought from his day to this. Homer sang the song that has sounded its manifold changes in poetry for centuries. These men and others too numerous to mention invented processes and formulated aspirations that have been

inherited by succeeding times as so much capital for future intellectual growth and culture. How far mankind has improved upon the models set is an open question, but there is no doubt that at least in so far as they have led we have followed from barbarism to civilization.

Again there are those who believe that the study of Nature and Nature's laws, as embodied in the physical universe, accomplishes the most in the development of culture. To them comfort has almost been the synonym of culture. The man who made a tool to dig the soil, to fell the tree and shape it, to forge the iron, to build the home, and to make other tools for use and defense, was, they argue, a greater benefactor than Homer or Phidias, or the long line of poets, artists, orators, and logicians. A man with a comfortable home and clothing and certain and abundant food, has in the estimate of these philosophers made greater strides towards civilization than from all other causes combined. There is much force in the claim, for a song is but poor satisfaction to a hungry stomach, and there can be but little room for culture in a life devoted to perpetual struggle against famine and gold. The highest culture can come only to those independent of the elements, to those who have leisure which follows means temporal and intellectual.

Again, the claim is made that the chief source of the world's civilization comes from commerce, and by this is meant not only the exchange of commodities but the mingling of men in the many relations of society, the attrition of mind with mind, the comparison and satisfaction of wants, the desire for social intercourse, the necessary adjustment of conflicting interests, from which are expanded laws, customs, and good order. This claim is founded largely upon the fact that culture, as understood by the publicists generally, is rarely found in sparsely settled or isolated communities; that it is most highly developed in such nations only as are largely the sources of or are on the highway of the world's traffic. The man who has wants seeks the man who can satisfy them. The mutual relation is of advantage to both. Each is the debtor of the other and each seeks to conciliate and accommodate the other. This dependence upon one another ameliorates the condition and character

of both. A bargain is a long step in advance of rapine. A contract is the seed wheat of civilized society. It implies good faith, honesty, ability to perform, and industry and exertion to fill the obligation. Out of it grow credit, public and private enterprise, fixed purpose, and a stable condition of affairs. Confidence fills the sails of every sea and runs the busy wheels of the world's industries. This, in truth is good soil for culture.

UNION OF CULTURE AND LABOR.

There was comparatively little of the ascetic spirit in Greece and Rome in their best days. The physical powers were trained as well as the mental. After the downfall of both the world went into the dark ages, from which it emerged divided into two classes, monks and warriors, the monasteries including nearly all the intelligence and religion, the chivalry and the serfs but little of either. It took centuries to open the cloisters and diffuse their stores of knowledge and their habits of study and their means of culture among the masses. The divorce of the body and the mind has been of long standing, and modern times are slowly reuniting them.

It is for the best minds of our day to study the problem of this new impulse, and to devise the best methods of joining hand and eye, heart and will, intelligence and culture, in the generation just coming on to the threshold of life, so that it shall know how to work, at what to work, and not to be ashamed of work, and yet to preserve and promote true culture.

In view of all this, what is the lesson for New England, the source of so much to be praised by every patriotic citizen, the exemplar of thrift, liberty, intelligence, and culture to a mighty nation? She has depleted herself for the general good. Is her vitality waning? Are her strength and resources being exhausted? I have not taken much stock in the allegations, inspired by the hope, it may be, that she has about quit the raising of men, raising them in the fullest sense, for the west. There is, perhaps, just enough truth in the assertion to give it feet to run upon. Let us see.

It costs a thousand dollars to raise an able-bodied man.

This includes taxes, doctor's bills, and prayer meetings. Every able-bodied immigrant who reaches our shores with pluck, willingness to work, good habits, good morals, and loyalty to his adopted land, is a thousand dollar addition to its potential energy, its producing capital. In ante-bellum times a hearty Virginian slave was worth a thousand dollars in the open market for the cotton fields. It takes the substance of four acres of rich virgin soil to produce a mature man. Twenty-one years of annual cropping without the recuperative energies of nature and restoration by artificial means will make the soil as sterile as a bean-pod. The impoverishment of the soil of New England and Virginia is not due alone to the products carried off to market nor to the substance washed from their hills into the sea, but is due in large part to the substance that has gone into the men and women reared thereon, to the human beings that have walked away with the substance of the acres on their backs, in their bones and blood and muscles and in their brains. In the case of New England the great west has reaped a human harvest raised for its benefit without cost to itself and with immense loss to the east. In the case of Virginia the southern cotton fields were manned, equipped, and carried on by Virginia muscle grown at the expense of Virginia soil.

It costs, therefore, to make a man; it costs immensely to make a million men. It costs to make a generation, ten generations of men. Unless therefore science and intelligence handle the plow three generations will cart off or walk away with the productive capacity of a homestead; the more and denser the homesteads, the sooner the country will be despoiled of its virtue, fecundity, and fertility. Bear in mind that in large measure the multitudes you have sent forth to fructify and replenish the earth were warmed and impelled by wholesome farmer blood that had in it a strain of granite and of hardy New England rural life.

In so far as the agriculture of New England shall depreciate so far will your race lack that tone and that vigor that commands the respect and dominates the affairs of the communities of which it shall become citizens. It is important, therefore, that this primary source of its power and vitality should be

promoted and preserved. It is with surprise and pleasure that we of other states note the efforts you are making to restore your forests and farms, to put intelligence into your agriculture, to adapt your crops to changed conditions caused by cheap transportation, to ennoble the occupations and diversify the products of husbandry. It is with peculiar pleasure that I am with you to-day to witness this new seat of learning dedicated to Agriculture and Mechanic Arts in the very heart of New England. It is rendered possible by the foresight and patriotic impulse of a New England man, and promoted by another from your own state. Every state and territory in the Union will think none the less of the founder of the Industrial Education which these colleges inaugurated, and so fitly represent, that he came from "sterile" New England. It was born of her necessity, but is proving the most wholesome and satisfactory element in the education of the age. If the good people of these six New England states will stand by the possibilities of their Agricultural and Mechanical college, and will make these possibilities verities, they will retain their ascendencies. If they do not, what is now perhaps approaching equality will simply precede her decline and fall, and we may and will begin to write her history now. New England is the Anteus of the nineteenth century. Born of Neptune and Terra, she will be invincible so long as she keeps in contact with her mother, Earth. May no modern Hercules lift her feet therefrom and strangle her in the air.

PART II

AGRICULTURAL EXPERIMENT STATION

SIXTH ANNUAL REPORT

REPORT OF THE CHEMICAL DEPARTMENT.

BY F. W. MORSE.

The chemical department has been occupied during the larger portion of the year in work connected with investigations; but no small amount of time has been spent in the analysis of fertilizing materials, milk, water, cattle-foods and kindred substances received from the people throughout the state. The demand for this work is steadily increasing. Substances so received are examined as soon after their arrival as circumstances will permit. In addition to these two lines of work, samples of forty-two different brands of commercial fertilizers have been analyzed for the secretary of the board of agriculture. In all the work of the department efficient service has been rendered by Mr. E. P. Stone and Mr. F. D. Fuller.

FERTILIZING MATERIALS.

The fertilizing materials received from various sources include eight samples of wood ashes, and one sample each of Orchilla guano, fine-ground bone, sheep-manure, and muck. The composition and description of samples follow.

1. Unleached ashes,	Received from Stratham.
2. Unleached ashes,	Received from Portsmouth.
3. Canada ashes,	Received from Durham.
4. Unleached hard-wood ashes,	Received from Walpole.
5. Canada ashes, "Beaver Brand,"	Received from Pittsfield.
6. Dry ashes from a soap-factory,	Received from Pittsfield.
7. Canada ashes,	Received from Rochester.
8. Canada ashes,	Received from Portsmouth.

	1	2	3	4	5	6	7	8
Moisture	25.82	13.97	15.36	15.53	12.43	3.26	7.49	21.73
Phosphoric acid	.....	.....	.....	1.10	1.56	3.53	1.43	1.01
Potash	2.60	2.89	3.72	3.65	4.30	8.50	3.35	4.33

Orchilla guano, Received from Stratham.
Fine-ground bone, Received from Exeter.
Sheep-manure, Received from Andover.
Muck, Received from Gilmanton.

	Orchilla Guana.	Fine-ground bone.	Sheep Manure.	Muck.
Moisture	.....	5.85	8.52	80.89
Nitrogen	.....	2.43	2.42	.316
Soluble Phos. Acid	.....	.....	1.18	.....
Reverted Phos. Acid	4.74	3.35	.84	.....
Insoluble Phos. Acid	14.36	17.55	.10	.....
Total Phos. Acid	19.10	21.90	2.12	.096
Potash	.....	.....	2.90	Trace.

Orchilla guano is a rock-phosphate which comes from the West Indies, and should not be confounded with the true guanos or bird deposits. Its availibility in the raw state depends upon the degree of fineness to which it has been pulverized.

The sheep-manure was a sample from a lot sold by a Boston agricultural warehouse at the rate of $45.00 per ton. Such a price is exorbitant.

The sample of muck was received in the condition in which it was dug from the bed. Weathering would rid it of much of the water and consequently increase the proportion of nitrogen and phosphoric acid.

CATTLE FOODS.

The description and composition of the cattle-foods which have been examined are as follows:

1. Nutriotone, Received from Warner.
2. Golden Gluten Meal, Received from Durham.
3. Buffalo Gluten Feed, Received from Durham.

4. Thorley Food, Received from Nashua.
5. Oat Feed, Received from Portsmouth.
6. Oat Feed, Received from Goffstown.

	1	2	3	4	5	6
Moisture	7.24	10.47	9.51	8.80	9.42	7.78
Ash	21.65	0.95	0.77	11.14	3.79	4.45
Crude Protein	22.38	27.00	22.05	20.34	9.22	8.75
Crude Fiber	5.44	3.56	7.13	4.54	10.90	12.78
Nitrogen-free Extract	36.01	48.69	47.30	47.38	62.39	61.85
Fat	7.28	9.33	13.24	7.80	4.28	4.39

Nutriotone (1) and Thorley Food (4) prepared by the Thorley Food Co., have been extensively advertised in the state. They are characterized by an extraordinarily high percentage of ash. This is partly accounted for by the presence of salt, of which the former contained 10.12 per cent., and the latter 7.82 per cent. Both samples are inferior in chemical composition to the gluten meal (2) and gluten feed (3).

7. Ensilage of corn, Received from Goffstown.
8. Ensilage of apple pomace and oat straw, Received from Cornish.
6. Apple pomace free of straw, Received from Cornish.
10. Ensilage of corn, Received from Goffstown.

	7	7	8	8	9	9	10
	Original Sample.	Dry Substance.	Original Sample.	Dry Substance.	Original Sample.	Dry Substance.	Dry Substance.
Water	70.41	.....	75.14	.....	76.71	.....	.....
Ash	1.62	5.47	1.27	5.11	1.13	4.86	6.17
Crude Protein	2.48	8.37	1.51	6.06	1.88	8.06	8.25
Crude Fiber	7.35	24.83	6.82	27.44	4.34	18.63	26.37
Nitrogen-free Extract	17.26	58.37	13.98	56.25	13.93	59.81	55.96
Fat	.88	2.96	1.28	5.14	2.01	8.64	3.25
Albuminoids	1.86	6.29	.....	.....	.....	.....	6.04

The acids in 100 parts of pomace neutralized 0.463 part of sodium hydroxide.

The ensilage (7) was made from common flint corn in a ripe condition and Blount's Prolific with ears at the roasting stage, mixed together by putting a load of each alternately into the silo. Ensilage (10) is a mixture of a small, early flint variety in an over-ripe condition with Blount's Prolific at the roasting stage, in the proportion of one part of the former to three parts of the latter.

The ensilage of apple pomace and oat straw was prepared by filling the silo with alternate layers of pomace and straw. The chemical composition of the mixture compares favorably with that of the corn ensilage. It was reported that cows ate the ensilage eagerly and responded with a considerable increase in milk-yield as compared with the product while on dry food. It appears to be a good way to save a waste product and to increase the palatableness of oat straw.

MILK AND CREAM.

Thirty samples of milk of unknown origin with regard to breed, of which some represent the mixed milk of herds, and others the milk of individual cows, have been tested for fat by the customary methods. The only way to make use of the results of such analyses is to arrange them in groups according to the percentage of fat.

Such an arrangement of the thirty results is as follows:

Percentage of Fat	3 to 3½	3½ to 4	4 to 4½	4½ to 5	5 to 5½	6 to 6½
Number of Samples	3	1	9	9	7	1

Seventy-eight samples of Ayrshire milk from the individuals of two large herds have also been tested for the percentage of fat, and the results are grouped in a similar manner to the preceding.

Percentage of Fat	2½ to 3	3 to 3½	3½ to 4	4 to 4½	4½ to 5	5 to 5½	5½ to 6
Number of Samples	4	15	23	29	2	3	2

Five samples of milk from Holstein cows were received and analyzed for both fat and total solids. Numbers 1 and 2 were from cows bred expressly for milk-production, and number 3 from a cow bred for butter and belonging to a family noted for their butter-producing qualities. The difference in the composition is very marked.

	1	2	3	4	5
Fat	2.18	3.16	6.40	3.44	2.80
Solids	9.62	11.17	16.40	11.26	12.11

Two samples of milk were received in sealed bottles and were represented to be the mixed milk from a small herd. Sample *a* is remarkable for its small percentage of solids not fat.

	Sample a.	Sample b.
Fat	3.42	3.76
Solids not fat	6.61	7.49
Total solids	10.03	11.25

Two samples of cream from a coöperative creamery conducted on the cream-gathering plan show the necessity for a fat-test for cream as well as for milk. A sample of mixed cream, as churned, yielded 17.48 per cent. of fat, while a sample of cream collected from one of the patrons yielded only 11.52 per cent. of fat.

INSECTICIDES.

Two samples of insecticides have been analyzed. One was received from Chicago and bore the name of "Oriental Fertilizer and Insect Destroyer." It was a liquid with a yellowish tint containing a small quantity of dark, solid matter which settled to the bottom. The analysis showed it to be a crude Fowler's Solution, i. e., arsenic dissolved in a solution of commercial carbonates of soda and potash. One thousand cubic centimeters of liquid contained 13.12 grammes arsenic and 10.28 grammes potash. Soda was not determined quantitatively, but was found in about equal volume with the potash. The liquid

would be extremely poisonous, though the potash present would not make it especially valuable as a fertilizer.

The other sample was called the "Non-Poisonous Insect Exterminator." It was a brownish powder with an odor of carbolic acid, and appeared to be what is known as "carbolate of lime." An extraction with ether gave 3.61 per cent. of crude carbolic acid; the amount of lime was found to be 78.12 per cent.

Such a mixture as this sample would be worthless as an insect exterminator or disinfectant.

WATER.

Numerous samples of water have been examined in the course of the year, and this line of work is becoming one of the most important which the chemical department has to perform. However, the publication of analytical results without a description of the sources from which samples were taken would be of little or no use, and such descriptions are often hard to be obtained by the station. The following samples have been selected because reasonably full descriptions of their origin could be given.

1. Spring. Received from Wakefield.
Located on a hill-side covered with a growth of pine and birch.

2. Spring. Received from Durham.
Rises in low ground beside a brook. Is about three rods from a railroad embankment. The surrounding water-shed is thinly inhabited. The spring is boxed around the sides and flows freely.

3. Spring. Received from Durham.
Located in a mowing-field with a surface somewhat inclined. About one hundred feet from the spring and higher on the slope is an ice-house. The spring is surrounded by a large box and contains much saw-dust and leaves.

4. Artesian well. Received from Dover.
The well is one hundred seventy feet in depth.

5. Well. Received from Dover.
The location is on a hill and in an inhabited district. Cess-pools are from one hundred to one hundred and fifty feet distant. The curb of the well is high enough to prevent surface wash.

6. Well. Received from Dover.
Located on a farm, near the entrance to the dwelling. There is a depression between the well-curb and the foundation of the house, in which the waste-water from the pump collects and slowly percolates into the soil.

PARTS PER 100,000.

	1	2	3	4	5	6
Free Ammonia	.0026	.0056	.0151	.0028	.0036	.0018
Albuminoid Ammonia	.0025	.0080	.0064	.0080	.040	.0204
Chlorine	.533	.630	.530	.670	3.050	5.080
Nitrogen as Nitrates	.0010	.0010	.0099	.0347	2.0000	.7140
Nitrogen as Nitrites	.0001	.0002	.0000	.0000	.0041	.0260
Total Solids by Evaporation	4.20	8.20	9.80	19.40	33.60	37.00
Turbidity	None.	None.	None.	None.	None.	Slight.
Sediment	None.	None.	None.	Small.	None.	Much.

Samples 1 and 2 are examples of good spring water; 3 has more ammonia and nitrates and would doubtless be improved if kept free from saw-dust and leaves. The sample of deep-well water (4) is a good water of its kind, containing more solids and nitrates than the spring water. Sample 5 is a good illustration of a well water in a village. The chlorin and nitrates show a heavy contamination with drainage water from sinks or vaults; but the ammonia in both forms is low and therefore the impurities have been pretty thoroughly changed in percolating through the soil. The last water, however, is a thoroughly bad sample. Albuminoid ammonia, chlorin, nitrites and nitrates, all unite to show contamination and also that the impurities are only partially changed to harmless forms by passing through the soil.

WATER AS A FERTILIZER.

A sample of water was received from Gilmanton which represented a pond used for irrigation. It was desired to know whether the water furnished any fertilizing material when turned upon the land. It was found to contain the following quantities of manurial substances expressed in parts per 100,000 and in pounds per acre for one inch in depth of water:

	Parts per 100,000.	Pounds per acre.
Nitrogen in ammonia	.0072	.016
Nitrogen in organic matter	*.0340	.077
Nitrogen in nitrates	.0337	.076
Phosphoric acid	.1140	.258
Potash	.5240	1.187

*Fourteen-seventeenths of two times the albuminoid ammonia.

COMPOSITION OF RAIN.

During the months of July and August, 1893, samples of the rain-fall of nearly every shower or prolonged rain were collected and analyzed.

The samples were procured by means of a large tin funnel nearly one yard in diameter, terminating in a stem small enough to enter the neck of a common five-pint bottle. The funnel was supported by means of a suitable frame, while the bottle stood upon the ground. By this arrangement, any shower with a precipitation of one tenth of one inch or over could be readily sampled and analyzed. More than one sample was procured in two cases, because the first bottle was filled and another was put in its place before the shower was over.

Free ammonia was determined in every sample; but nitrates and albuminoid ammonia were not always. Nitrites were present in nearly every case but were not estimated.

The dates of the sampling and the composition follows.

PARTS IN 100,000.

Date of Sample.	Free Ammonia.	Nitrogen as Nitrates.	Albuminoid Ammonia.
July 19, *a*	.0280		
July 19, *b*	.0280		
July 19, *c*	.0200		
July 22, *a*	.0296	.0025	A very severe thunder shower. Nitrites were brightest in the last sample.
July 22, *b*	.0320	.0049	
July 22, *c*	.0264		
July 23	.0200	Trace.	
July 25	.0240	.0160	
July 26	.0176		
July 29	.0560	.0480	
August 5	.0160	Trace.	
August 7	.0840		A light shower.
August 12	.0552	Trace.	
August 17	.0152	.0098	.0160
August 18	.0156	.0094	.0120
August 21	.0164	.0136	.0440
August 24	.0088	.0012	.0132
Average	.0289	.0096	.0213

During the months in which the rain was analyzed there fell, as measured by the station meteorologist, a total of 5.81 inches. Calculating from the average composition and the number of inches, we have the amount of .380 pound ammonia, and .126 pound nitrogen as nitrates falling upon an acre of soil during those two months.

CIDER.

Six samples of bottled cider were received from Tilton, part of which had been treated to retard fermentation. Before bottling, the apple-juice had been allowed to stand in barrels until the first active fermentation had ceased. The bottles each received one-half ounce of granulated sugar before being filled with the cider. The bottles were corked and wired, and after the sugar had been dissolved, a portion of them were submerged in

water, which was gradually heated to a temperature of 140° Fahr., and then allowed to cool slowly; another portion was heated in a similar way to 130°; while a third portion was not treated at all. For comparison with these bottled samples, a quantity of cider which had simply been barrelled was obtained in Durham. All of these ciders were approximately one year old.

Their composition was as follows:

	Heated to 140° Fahr.			Heated to 130° Fahr.	Untreated.		Barrelled.
	1	2	3		5	6	
Specific gravity	1.060	1.058	1.057	*....	1.028	1.006	0.999
Total solids	14.17	14.67	14.10	11.70	9.54	3.96	2.38
Alcohol by volume	0.90	1.02	1.20	2.87	5.50	8.65	7.10
Alcohol by weight	0.71	0.80	0.95	2.29	4.40	6.95	5.69
Total sugar	8.25	5.39	6.89	10.75	7.91	1.92	0.26
Free acids as malic	0.71	0.76	0.71	0.77	0.53	0.42	0.76
Albuminoids	0.042	0.040	0.040	*....	0.040	0.045	0.012
Ash	0.322	0.379	0.255	0.230	*....	0.290	0.280
Carbolic acid by volume	18.7	42.1	*....	*....	*....	45.3	*....

* Undetermined.

There is a notable difference in the amount of alcohol present in the samples heated and in those that were allowed to ferment fully.

REPORT OF THE BACTERIOLOGIST AND PHOTOGRAPHER.

During the past summer ('94) experiments in the treatment of the fungous diseases of potatoes, apples, and pears were continued.

In the case of potatoes the experiments were directed chiefly towards the prevention of the *early blight*, and the *scab*.

The following description of the early blight is reprinted from the New Hampshire Experiment Station Bulletin No. 22 :

The early blight (*Macrosporium solani*) has come to be recognized as a serious disease of the potato only within the last two or three years. It was first noticed at this station in the summer of 1892. As its name indicates, it makes its appearance earlier than the ordinary blight—by the middle of July or earlier. It first appears, as sharply defined, rather irregular, dark brown or blackish spots on the leaves. The surface of the spots is usually marked with minute wrinkles, which take roughly the form of numerous circles with a common centre ; this has been called the "target marking," from its resemblance to the concentric rings of a target. The spots increase gradually in number and size till the whole leaf is destroyed.

The fungus producing this disease differs considerably in the details of its structure from the late blight, but like it, consists of mycelial threads which grow in the tissues of the leaf and send out spore-bearing stalks on the surface. The early blight may be distinguished from the late blight by its characteristic spots, by the absence of the mould-like growth on the under side of the leaf in the case of the latter, by its earlier appearance and slower growth, and by the fact that it does not affect the tubers.

The experiments against the early blight were made in the station potato-field. On July 7 plots aggregating one and one sixth acres were sprayed with Bordeaux mixture. Alternate plots

aggregating eight tenths of an acre were left unsprayed for comparison.

The spraying was repeated July 26, August 8, 21, and September 4.

The early blight did not make its appearance in the field until about the time of the third spraying, August 8, and did not begin to seriously affect the unsprayed vines until two weeks later. By the middle of September, however, the unsprayed vines were dead, while the sprayed vines, in varying proportions in different parts of the field, were alive the first of October, when the potatoes were dug.

Owing to the uneven character of the field and the effects of the drouth, the yield of the sprayed plots as a whole could not be compared with that of the unsprayed plots. Smaller plots of each as similar in character as possible were chosen and the yields compared. Five pairs of plots were selected, each consisting of a sprayed and an unsprayed plot lying side by side. The sprayed plots showed an increase in yield over the unsprayed as follows:

Pair No.	1	an increase	. . . .	29.1	bushels	per	acre.
" "	2	"	. . . .	31.9	"	"
" "	3	"	. . . .	54.7	"	"
" "	4	"	. . . .	28.4	"	"
" "	5	"	. . . .	21.3	"	"

The average increase per acre apparently due to spraying was 33 bushels.

The cost per acre, of each spraying, was $3.52; for the five sprayings $17.60. The potatoes were sold for 60 cents per bushel. At this price the 33 bushels were worth $19.80. Deducting the cost of spraying, there was left a profit of $2.20. This, as it stands, would not be a very brilliant result—but there are several circumstances which should be taken into consideration along with it. It seems probable that three sprayings beginning the first of August would have answered as well as the five beginning the 7th of July. Spraying was begun at this early date to make sure of getting ahead of the blight which, however, did not appear till about the middle of August. Had three sprayings only been made, the cost would have been $10.56 and

the profit $9.24. It is probable that owing to the drouth and the late appearance of the blight, the difference in yield between the sprayed and unsprayed potatoes was not as great as it would be ordinarily. Again, it is possible that with the desire to make the treatment thorough, more materials were used and more time taken than was actually necessary.

At each spraying 150 gallons of Bordeaux mixture per acre were used. The mixture was made according to the following formula:

Blue vitriol	5 lbs.
Lime	5 lbs.
Water	50 gallons.

The blue vitriol cost in 25-lb. lots in Boston, 6 cents per pound, and about 6½ cents laid down. The lime was purchased in small quantities, and cost 1 cent per pound.

At these prices 150 gallons of Bordeaux mixture cost $1.12½, or about ⅔ of a cent per gallon. In spraying an acre two men were employed eight hours at 15 cents per hour; the time expense was $2.40. The actual time of spraying was 6 hours; 2 hours were occupied in obtaining water, making the mixture, etc.

It is probable that the expense for labor can be considerably reduced. The total expense will vary with the luxuriance of the vines, the number of applications required, the local cost of materials, the form of apparatus used, and the convenience of water. It is our belief, however, that spraying against the early blight will be found to be a profitable operation.

POTATO SCAB.

Within a few years it has been found that this serious disease is not caused, as has been supposed, by any condition of soil or fertilizers, but by minute parasitic plants belonging to the class known as bacteria. These plants grow in the superficial portions of the tuber, where they act as an irritant, causing a growth of the tissues, which results in the production of the characteristic scab spots. A scabby crop of potatoes results either from the use of scabby seed, or from planting on ground

which has previously produced a scabby crop. The germs of the disease live on the harvested potatoes, and also for an indefinite time in infected soil. When it was found that the scab was caused by bacteria it readily occurred to the experimenters that corrosive sublimate, a substance extensively used for the destruction of other bacterial germs, might prove useful in treating it. This has been tried, and the corrosive sublimate found to be capable of destroying the germs on scabby seed, so that when the latter was planted on soil free from the germs a smooth crop was produced.

An experiment in this line was tried here the past season. Potatoes of the Delaware variety, very badly scabbed, were used. Previous to planting half of the potatoes were treated with corrosive sublimate in the following way:

Two and one fourth ($2\frac{1}{4}$) ounces of corrosive sublimate were dissolved in two or three gallons of hot water. This was poured into a half barrel and sufficient cold water added to make fifteen gallons in all. The potatoes contained in a coarse "feed" sack were placed in this solution and allowed to remain for an hour and a half. The sack of potatoes was then removed, and after draining the potatoes were emptied out and allowed to dry. They were then cut and planted. Treated and untreated seed was planted side by side in alternate plots of two rows each, on land which had not been plowed for many years before, and was therefore presumably free from scab germs.

When the plots were dug the tubers of marketable size were sorted into three grades, viz.: the first, practically free from scab; second, more or less scabbed; third, badly scabbed. The following table shows the result:

	Treated.	Untreated.
1st grade.	60 per cent.	31 per cent.
2d "	31 "	36 "
3d "	9 "	33 "

This shows that although the scab on the treated plots was not wholly prevented it was greatly reduced. The seed which was very badly scabbed was not washed previous to treating it, and possibly the solution of corrosive sublimate did not penetrate to all parts of the scabby patches.

It would not be advisable, of course, to plant scabby seed even with this treatment, if clean seed could readily be obtained; but it is difficult to obtain seed in regard to which one can be certain that it is not more or less contaminated, for small patches of scab are easily overlooked. Tubers absolutely free from scab themselves, if selected from a bin in which there were a few scabby ones, would be liable to carry germs in the dirt adhering to them. In using such seed it would doubtless be of benefit to wash them thoroughly in water alone, but better in the corrosive sublimate solution. The relation of fertilizers and conditions of soil to the development of scab has not yet been definitely made out, aside from the fact that they are not the direct cause of it. It seems likely that certain conditions of soil, existing naturally or produced by the use of certain fertilizers, are especially favorable to the growth of the scab plant when its germs happen to be present on the seed or in the soil.

The cost of treating the seed for an acre ought not to exceed $1.50 for both labor and materials. In the above experiment there was a gain of thirty bushels of marketable potatoes per acre on the treated plots.

As corrosive sublimate is a powerful poison, it should not be used carelessly.

Experiments in the treatment of apple and pear diseases were also carried on and will be reported on later.

H. H. Lamson.

INVESTIGATION OF MAPLE SAP, SYRUP, AND SUGAR.

BY A. H. WOOD AND F. W. MORSE.

During the last three years the writers have been engaged in the study of problems connected with the maple-sugar industry. The work has been divided between us, so that one has conducted the field work and prepared the samples for analysis, while the other has performed the chemical work. The investigations are arranged under three heads.

I. MAPLE SAP.

Owing to the brief period during which maple sap flows freely, it has been found difficult to undertake as complete studies in one season as are necessary for a thorough knowledge of the subject from a scientific standpoint. Furthermore, seasons vary much also, so that several years are required to afford data for sound conclusions. Therefore the results in the following tables can at present be only looked upon as facts from which few generalities may be drawn.

The first three tables show the general range in percentage of saccharose (cane sugar) which has been found in sap from various trees. The work in 1892 was done at Hanover, while that of 1893 and 1894 was carried out at Durham.

TABLE 1.

Percentage of Sugar in Maple Sap. 1892.

Description of Tree.	Date of Sample.	Per cent. Saccharose.
a. Rock maple, situated in a thick grove on the western slope of a hill. Tall, with small top. Diameter about 12 inches	Mar. 27 Mar. 31 Apr. 14	1.95 1.30 1.40
b. Rock maple, situated near *a* and of similar form and size	Mar. 27 Apr. 14	2.55 1.20
c. Rock maple, situated beside a cart-path in the same grove with *a* and *b*. Tall, with spreading branches. Diameter about 15 inches	Mar. 27 Mar. 31 Apr. 14	3.05 2.30 2.10
d. Rock maple, situated beside *c* and similar in size and form	Mar. 27 Apr. 14	2.35 1.50
e. Rock maple, large tree, 3 feet in diameter, with wide spreading branches, situated on a western slope and surrounded by tall young pines	Mar. 31	2.80
l. Rock maple, large pasture shade-tree, situated in Lebanon. Sap was 24 hours from the tree	Mar. 31	5.60
f. White maple, situated in low, moist ground; diameter 10 inches; many branches	Mar. 31 Apr. 2 Apr. 12	4.00 3.50 3.10
g. White maple, situated on high ground; diameter 2 feet; wide branches	Mar. 31 Apr. 2 Apr. 12	2.50 2.40 1.90

TABLE 2.

Percentage of Sugar in Maple Sap. 1893.

Description of Tree.	Date.	Per cent. Saccharose.
2. White maple, situated in a meadow, tall with medium width of branches; diameter 10 inches	Mar. 22 Mar. 25 Mar. 30 Apr. 13	2.80 2.20 2.90 2.80
3. White maple in a meadow, about five rods from 2, one side decayed, as though it had been struck by lightning	Mar. 22 Mar. 25 Apr. 1 Apr. 16	3.00 2.40 2.90 2.35
4. Rock maple, near 2, and similar in form and size. Average composition for the season, from two spouts	Mar. 22 to Apr. 16	2.95
6. White maple, large shade-tree by road side. Average composition for the season	Mar. 22 to Apr. 1	3.50
7. Rock maple, large shade-tree by road side. Average composition for the season	Mar. 22 to Apr. 1	2.98
9. Rock maple, similar to 7. Average composition for the season	Mar. 22 to Apr. 20	3.12
14. Small white maple, four inches in diameter	Apr. 10	2.80

TABLE 3.

Percentage of Sugar in Maple Sap. 1894.

Description of Tree.	Date.	Per cent. Saccharose.
15. Small rock maple near a brook	Mar. 13	2.76
16. Rock maple on a southern slope, surrounded by other trees; diameter about 13 inches	Mar. 13	2.23
17. Large white maple	Mar. 13	2.45
	Mar. 30	2.33
18. Large rock maple	Mar. 13	3.63
	Mar. 30	3.31
19. Large red maple	Mar. 13	2.03
	Mar. 30	2.15
20. White maple by road side	Mar. 30	1.82
21. Small white maple by road side	Mar. 30	1.89

The range in percentage of sugar was very wide, and some of the trees yielded sap which, by itself, would hardly have paid for evaporating. The highest percentages of sugar were found each season in trees which were fully developed in limb and branch, viz., trees *l* and *f* in 1892, trees 6 and 9 in 1893, and trees 18 and 17 in 1894. The quality of sap was independent of variety of maple, as far as these investigations went.

In table 4 the analyses of samples from trees 4, 6, 7, and 9 are given in detail, to show the variation in composition of sap during the season.

TABLE 4.

Variation in per cent. of Sugar During the Season. 1893.

Description of Tree.	Date.	Per cent. Saccharose.
4. Rock maple in a meadow. Tall, with a medium spread of branches; diameter about 11 inches. Tapped in two places.....	Mar. 22	3.40
	Mar. 25	3.10
	Mar. 30	3.00
Tap A.	Apr. 1	2.70
	Apr. 16	2.39
	Mar. 22	3.40
	Mar. 25	3.40
Tap B.	Mar. 30	2.75
	Apr. 1	2.80
	Apr. 16	2.51
6. White maple. Shade-tree by road side.....	Mar. 22	4.90
	Mar. 25	3.30
	Mar. 27	3.40
	Mar. 30	2.90
	Apr. 1	3.00
7. Rock maple. Shade-tree by road side.....	Mar. 22	3.20
	Mar. 25	2.80
	Mar. 27	3.10
	Mar. 30	2.90
	Apr. 1	2.90
9. Rock maple. Shade-tree by road side.....	Mar. 22	4.00
	Mar. 25	3.40
	Mar. 27	4.00
	Mar. 30	3.40
	Apr. 13	2.50
	Apr. 16	2.21
	Apr. 20	2.35

The changes during the season show a gradual falling off in the percentage of sugar, but they do not take place uniformly and there are fluctuations up and down. Trees 6, 7, and 9 showed an increase on March 27 over the results obtained on March 25; and trees 4 (tap B) and 6 show a similar rise on April 1 over the figures for March 30.

The decrease in sugar as the season advances does not appear to be due to an increase of other matter, because table 5 shows that solids decrease as well.

TABLE 5.

Relation of Saccharose to Total Solids. 1893.

Tree.	Date.	Per cent. Saccharose.	Per cent. Total Solids.	Purity Coefficient.
Tree 4. Rock maple.....	Apr. 1	2.70	3.01	89.71
Tap A.	Apr. 16	2.39	2.64	90.53
Tap B.	Mar. 30	2.75	3.01	91.35
	Apr. 16	2.51	2.79	89.97
Tree 3. White maple.....	Apr. 1	2.90	3.02	87.58
	Apr. 16	2.35	2.48	94.65
Tree 6. White maple.....	Mar. 27	3.40	3.61	94.19
	Mar. 30	2.90	3.37	86.06
	Apr. 1	3.00	3.21	93.46
Tree 9. Rock maple.....	Mar. 22	4.00	4.17	95.70
	Mar. 30	3.40	3.65	93.15
Tree 8. Rock maple.....	Mar. 22	3.20	3.52	90.90
Tap A.	Apr. 1	2.50	2.86	87.40
	Apr. 9	1.65	1.81	91.16
	Apr. 9	2.05	2.34	87.62
Tap B.	Apr. 16	2.03	2.23	91.03
	Apr. 20	1.98	2.18	90.82
Tree 10. Rock maple.....	Mar. 27	4.60	4.96	92.74
Tap A.	Mar. 30	3.30	4.10	80.48
	Apr. 1	3.50	4.37	80.09
Tap B.	Apr. 16	3.68	4.23	87.80
	Apr. 20	3.72	4.16	89.41

In the above table there are compared percentages of sugar and total solids on dates varying from one week to three weeks apart, and the solids decreased as fast as the sugar.

Nine determinations of specific gravity of sap, in 1893, showed a range between 1.009 and 1.019 with an average of 1.0143. Ten determinations of reducing sugars in sap, in 1892, showed a range between 0.0035 and 0.0118 per cent. with an average of 0.0064 per cent. Twelve determinations of ash yielded a variation from 0.007 to 0.042 per cent., the average being 0.0247 per cent.

In 1892 a tree was tapped in two places, one on the north-west and the other on the south-west side of the trunk.

The variation in percentage of sugar was found to be in favor of the sap from the north side. In 1893 this experiment was repeated on three trees, and again the north side was found in in two cases to yield the richest sap.

The results are shown in detail in table 6.

TABLE 6.

Variation in Composition of Sap from Different Sides of a Tree. 1892-1893.

Description of Tree.	Side.	Date.	Per cent. Saccharose.	Total Solids.
		1892		
Situated in thick grove on western slope. Tall, with small top; diameter about 10 inches.....	N. W.	Mar. 27	2.25	2.66
	S. W.	Mar. 27	1.95	2.12
		1893		
Tree 4. Situated in a meadow. Tall, with medium spread of branches; diameter about 11 inches.....	N.	Mar. 22	3.40	
		Mar. 25	3.40	
		Mar. 30	2.75	3.01
		Apr. 1	2.80	
		Apr. 16	2.51	2.79
	S.	Mar. 22	3.40	
		Mar. 25	3.10	
		Mar. 30	3.00	
		Apr. 1	2.70	3.01
		Apr. 16	2.39	2.64
Tree 2. White maple about 4 rods from 4, and similar in form and size.....	N.	Mar. 25	1.70	
		Mar. 30	2.60	
		Apr. 13	2.20	
	S.	Mar. 25	2.20	
		Mar. 30	2.90	
		Apr. 13	2.80	
12. Tree growing on a ledge in an open field. Branches low and wide-spread. Diameter about 20 inches.....	N.	Apr. 8	2.80	
		Apr. 10	2.95	
	S.	Apr. 8	2.40	
		Apr. 10	2.35	
	E.	Apr. 8	2.60	
		Apr. 10	2.60	
	W.	Apr. 8	2.20	

In 1893 two rock maple trees were each tapped in several places, for the purpose of ascertaining the variation in quality of sap in different parts of a tree. Tree 12 was growing on top of a ledge so that three roots had grown for several feet either wholly or partially out of the earth. It was situated by itself in an open field and had well developed branches. Its diameter was about 20 inches.

Tree 13 was also growing by itself in an open field, and was somewhat smaller than 12.

The richest sap was found in each case to flow from the trunk and on the north or north-west side. The branches and roots yielded less sugar than the trunk, with one exception, and

in this case (tree 12, trunk and root, west side) there was but one analysis of sap from the trunk, and the hole in the root was but a few inches from where the latter might be said to divide from the former. The details of analyses and locations of holes are given in table 7.

TABLE 7.

Variation in Composition of Sap from Different Parts of a Tree. 1893.

Location of Hole.	Date.	Per cent. Saccharose.	Total Solids.
Tree 12. Large root, near trunk; west side..	Apr. 8	2.40	
	Apr. 10	2.50	
	Apr. 12	2.40	2.49
	Apr. 20	1.68	1.92
Trunk, four feet from ground; west side..	Apr. 8	2.20	
Tip of small branch leaving trunk at a height of five feet; west side.....	Apr. 10	1.90	
	Apr. 13	1.90	1.97
Tip of limb 15 feet in length leaving trunk at a height of 8 feet; west side.....	Apr. 10	2.35	2.38
	Apr. 13	2.35	
Large root, 8 feet from trunk; east side....	Apr. 12	2.00	
	Apr. 20	1.20	1.25
Trunk, 4 feet from ground; east side.....	Apr. 8	2.60	
	Apr. 10	2.60	
Large root, 4 feet from trunk; south side..	Apr. 8	2.25	
	Apr. 10	1.90	
	Apr. 12	2.00	2.11
	Apr. 13	2.00	
	Apr. 20	1.65	1.92
Trunk, 4 feet from ground; south side.....	Apr. 8	2.40	
	Apr. 10	2.35	2.43
	Apr. 20	1.92	1.97
Trunk, 4 feet from ground; north side.....	Apr. 8	2.80	
	Apr. 10	2.95	
Tree 13. Trunk. Hole 4 inches in depth; south side.....	Apr. 8	3.00	
Trunk. Diagonal hole, keeping in the outermost wood; south side.....	Apr. 8	2.85	
Tip of branch 8 feet long, leaving trunk about 8 feet from ground; south side.....	Apr. 10	2.70	
	Apr. 13	2.40	
Limb, 15 feet from ground; 6 inches in diameter; south side	Apr. 8	2.75	
Trunk, near ground; northwest side.....	Apr. 8	3.70	
	Apr. 10	3.10	
	Apr. 12	3.20	
	Apr. 20	2.65	2.89
Trunk, near ground; north-east side. Hole 5 inches in depth.....	Apr. 10	2.40	
	Apr. 12	2.40	
	Apr. 20	1.98	2.13
	Apr. 26	2.15	2.19
Outer wood of above hole.....	Apr. 20	2.45	2.53

It has been claimed that the outer wood of the maple yields a richer sap than the inner wood. To test the correctness of this opinion tree 13 was tapped with two holes as near together as possible, one hole being bored diagonally in order to keep near the bark, and the other bored toward the centre of the tree. Each hole was bored to the same depth on the bit. The result of this experiment was contrary to the above claim. Trees 8 and 10, which had been flowing since March 22 from holes 1¼ inches deep, were then bored to a depth of 2½ inches in the same holes on April 9. Samples of sap from each tree were taken before and after the increase in depth of holes. The results were the same as with tree 13, and furthermore the percentages of sugar continued to remain higher for the balance of the season than they were before the experiment.

On April 20 two more trees, *o* and *p*, were tapped by boring a hole of large diameter to the depth of 1½ inches and continuing it with one of small diameter to an additional depth of 2 inches. The sap was collected from the outer and inner holes by means of a double spout, consisting of one tube within another. The results this time confirmed the above claim.

In 1894 two trees, *r* and *s*, were tapped in a manner similar to the last mentioned method, with the exception that the outer hole was carried to a depth of 2⅞ inches and the inner hole 2⅞ inches further. The results this time were decidedly in accordance with the claim.

The details of analyses are given in tables 8 and 9.

The ratios of sugars to total solids in the samples reported in table 9 varied more widely in those from the inner wood than in those from the outer wood ; but the average was almost the same for each, viz., .9482 for the outer and .9478 for the inner wood.

TABLE 8.

Variation in Composition of Sap from Outer and Inner Wood. 1893.

Description of Tree.	Date.	Per cent. Saccharose.	Total Solids.
Tree 8. Rock maple shade-tree by road side. Tapped first on March 22 to a depth of 1¼ inches. On April 9, after collecting the flow of sap, the hole was extended to the depth of 2½ inches	Mar. 22	3.20	3.52
	Mar. 25	2.90	
	Mar. 27	3.20	
	Mar. 30	2.60	
	Apr. 1	2.50	2.86
	Apr. 9	1.65	1.81
Hole bored deeper	Apr. 9	2.05	2.34
	Apr. 13	2.06	
	Apr. 16	2.03	2.23
	Apr. 20	1.98	2.18
Tree 10. Rock maple shade-tree by road side. Tapped in the same manner as 8, and on the same dates	Mar. 25	4.00	
	Mar. 27	4.60	4.96
	Mar. 30	3.30	4.10
	Apr. 1	3.50	4.37
	Apr. 9	3.45	
Hole bored deeper	Apr. 9	3.75	
	Apr. 13	3.73	
	Apr. 16	3.68	4.23
	Apr. 20	3.72	4.16
Tree 13. Large rock maple in an open field. Tapped with two holes near together. Hole bored diagonally, keeping near the bark	Apr. 8	2.85	
Hole bored toward centre, 4 inches in depth	Apr. 8	3.00	

TABLE 9.

Variation in Composition of Sap from Outer and Inner Wood. 1893-1894.

Description of Tree.	Date.	Outer Wood.		Inner Wood.	
	1893	Saccharose.	Solids.	Saccharose.	Solids.
o. Large rock maple in an open field. Tapped by boring a hole 1″ in diameter and 1½″ deep, and continuing the tapping with a ½″ hole, 2″ in depth	Apr. 20	2.45	2.53	1.98	2.13
p. Small rock maple growing in a wood. Tapped as above	Apr. 20	2.08	2.25	1.92	1.93
	Apr. 25	2.00	2.17	1.85	
	Apr. 26	2.10	2.30	1.75	1.94
	1894				
r. Tall maple in a group of trees in open field; 12″ in diameter. Tapped with hole 13-16″ diameter and 2⅞″ depth, continued by a hole 6-16″ diameter and 2⅞″ depth	Mar. 13	2.66	2.81	1.90	2.04
	Mar. 17	2.64	2.80	2.36	2.45
	Mar. 22	2.58	2.74	2.05	2.13
	Mar. 30	2.55	2.65	1.86	1.95
s. Rock maple in grove on south slope of a low hill. Diameter about 12″	Mar. 17	1.99	2.07	1.48	1.54
	Mar. 22	1.86	1.91	1.45	1.56
	Mar. 31	1.93	1.98	1.51	1.59

It has become a common practice to tap maples to a depth of only about an inch. This practice is based upon the belief that the flow of sap comes chiefly from the wood of very recent growth, and that to tap beyond the growth of the last six or eight years is a useless expenditure of labor and an unnecessary injury to the tree. To determine as to the correctness of this belief, as well as to investigate the comparative richness of the sap from the outer and inner wood, the following experiments were made. In the spring of 1892 two thrifty rock maples about 14 inches in diameter and growing in thick woodland were selected and tapped as shown in table 10.

TABLE 10.

Relation of Depth of Tapping to Flow of Sap.

1892.	Tree A.		Tree B.	
	1¾ inches deep. (South.)	3½ inches deep. (North.)	1¾ inches deep. (North.)	3½ inches deep. (South.)
March 25	5.0 lbs.	8.0 lbs.	7.0 lbs.	8.0 lbs.
March 26	3.5 "	3.0 "	1.5 "	3.5 "
March 28	4.0 "	6.0 "	1.5 "	3.0 "
March 30	7.5 "	14.0 "	2.0 "	6.0 "
April 1	8.0 "	16.0 "	2.0 "	6.0 "
April 4	2.0 "	5.0 "	1.0 "	3.0 "
April 10	11.0 "	19.0 "	8.0 "	17.0 "
April 12	8.5 "	18.5 "	8.0 "	20.0 "
April 16	4.0 "	16.0 "	5.0 "	15.0 "
	53.5 lbs.	105.5 lbs.	36.0 lbs.	81.5 lbs.

The 1¾ inch holes yielded 89.5 pounds of sap, while the 3½ inch holes gave a little more than double that amount, or 187 pounds.

In 1893 tree 8 was tapped twice, one hole being 1¼ inches deep and the other 2½ inches. Tree 9 was tapped 2½ inches deep and tree 10 1¼ inches. These trees were large, thrifty shade trees. The rate of flow was determined by noting the amount of sap that flowed in two minutes and in table 11 this amount is expressed in cubic centimeters. April 9th the 1¼ inch holes were deepened to 2½ inches, the rate of flow being taken just before and after the deepening.

TABLE 11.

Relation of Depth of Tapping to Flow of Sap.

1893.	Tree 8.		Tree 9.	Tree 10.
	1¼ inches.	2½ inches.	2½ inches.	1¼ inches.
March 14, 11:30 a. m.	15.0 c. c.	26.0 c. c.	46.0 c. c.	22.0 c. c.
March 14, 3:00 p. m.	6.0 "	12.0 "	22.0 "	15.0 "
March 21, 10:00 a. m.	6.0 "	6.5 "	8.5 "	7.5 "
March 22, 3:00 p. m.	7.0 "	12.0 "	11.0 "	7.0 "
March 25, 10:00 a. m.	4.0 "	7.0 "	5.5 "	4.5 "
March 25, 3:00 p. m.	3.0 "	5.5 "	4.0 "	2.0 "
March 27, 10:00 a. m.	2.0 "	6.0 "	12.0 "	6.0 "
March 27, 2:00 p. m.	16.0 "	26.0 "	26.0 "	15.0 "
March 29, 3:00 p. m.	15.0 "	18.0 "	20.0 "	12.0 "
April 9, 11:00 a. m.	7.0 "	24.0 "	12.0 "	4.0 "
	Deepened to 2½ in.			Deepened to 2½ in.
April 9, 11:00 a. m.	21.0 c. c.	22.0 "	12.0 "	18.0 c. c.
April 11, 10:30 a. m.	14.0 "	17.0 "	12.0 "	12.0 "
April 11, 3:00 p. m.	6.0 "	7.0 "		
April 12, 9:30 a. m.	31.0 "	37.0 "	47.0 "	44.0 "
April 20, 11:00 a. m.	9.0 "	17.0 "	14.0 "	9.0 "
Average rate before April 9, 11:00 a. m.	8.4 "	14.0 "	16.7 "	9.5 "
Average rate after April 9, 11:00 a. m.	16.2 "	20.0 "	17.0 "	16.6 "

In this trial the deepening of the 1¼ inch holes brought the rate of flow from these holes nearly to an equality with that from the holes originally 2½ inches deep. The increase is especially noticeable if a comparison is made between the rates of flow just before and after deepening.

April 17 a tree about 12 inches in diameter was tapped 2 inches deep with a 1 inch bit; the hole was then bored 2 inches deeper with a ½ inch bit. An iron spout was driven into the inner hole, and an old-fashioned sheet-iron spout driven under the outer one, so that the sap from the inner and outer wood could be gathered separately. At the time of tapping the rate was:

Inner hole, 9 c. c. per minute.

Outer hole, 6 c. c. per minute.

Three days later, April 20, the rate was 11 c. c. and 3 c. c. respectively. Thinking that the greatly decreased flow from the outer hole might be due to the free exposure of the sapwood to the air, another similar tree was tapped in the same manner.

The rate of flow from this second tree was 16 c. c. from the inner and 13 c. c. from the outer hole. In both trees the flow from the inner wood exceeded that from the outer wood, although the diameter of the outer hole was double that of the inner one.

In 1894 four trees were tapped as follows: R, tapped 2⅞ inches deep with $\frac{13}{16}$ inch bit, and the hole continued 2⅞ inches with ⅜ inch bit. An iron spout was driven into the inner hole and the outer hole was closed with a rubber stopper through which tubes were passed to give outlet to the sap from the outer and inner wood without subjecting the outer wood to exposure to the air. S, tapped 5½ inches deep with ½ inch bit. A thin rubber stopper, through which a small tube was passed, was driven to the center of the hole, the tube extending out through the center of the spout driven into the outer wood of the tree. We were thus able to compare the rate of flow from the outer and inner wood with the same bore throughout. T, tapped twice with ⅜ inch bit. The holes 4 inches apart and apparently in equally favorable positions. One hole 6 inches deep, the other 2 inches deep. U, standing near and similar to T, tapped with ¼ inch bit 6 inches deep.

Table 12 gives the rate per minute in cubic centimeters.

TABLE 12.

Relation of Depth of Tapping to Flow of Sap.

1894.	R.		S.		T.		U.
	⅜ in. Inner.	13-16 in. Outer.	½ in. Inner.	½ in. Outer.	⅜ in. 6 in. hole.	⅜ in. 2 in. hole.	¼ in. 6 in. hole.
March 17.....	10.0 c. c.	14.0 c. c.	7.5 c. c.	4.5 c. c.			
March 24.....	6.0 "	5.0 "	9.5 "	4.5 "	25.0 c. c.	3.0 c. c.	17.0 c. c.
March 26.....	8.0 "	6.0 "	13.0 "	6.5 "	19.0 "	4.5 "	18.0 "
March 29.....	3.5 "	3.0 "			3.0 "	0.3 "	4.0 "
March 31.....	6.0 "	4.5 "	8.5 "	7.5 "	14.0 "	0.2 "	15.0 "
Average.....	6.7 "	6.5 "	9.6 "	5.8 "	15.2 "	2.0 "	13.5 "
Diameter of hole..	Hole 5¾ in. deep. ⅜ in. and 13-16 in.		Hole 5½ in. deep. ½ in.		Hole 6 in. deep. ⅜ in.		Hole 6 in. deep. ¼ in.
Average rate of flow.....	13.2 c. c.		15.4 c. c.		15.2 c. c.		13.5 c. c.

Although the rate of flow was taken but a few times in 1894, the results are in each case in accord with those of the preceding years. The flow from the inner wood of tree R exceeded that from the outer wood, although the inner hole was less than half the diameter of the outer hole. In S with a hole of uniform diameter the flow from the inner wood was almost double that from the outer. The remarkable difference in the rate of flow from the 6 inch and 2 inch holes in tree T raises a question as to the effect of a deep hole upon the flow from a shallow one near it. A reference to table 11 shows that deepening the shallow hole in tree 8 in 1893 at once decreased slightly the flow from the deeper hole. The rate of flow from tree U is of interest as showing the rapid flow from a deep but small hole. A comparison of the rate of flow from holes of nearly equal depth, but of various diameters, is afforded by these four trees as shown in table 12.

The only conclusions that can possibly be drawn from the results of these trials, as shown in the preceding tables, is that the flow of sap is very largely dependent upon the depth of tapping; that the theory that all or nearly all of the sap comes from the outer wood is erroneous; and that our sugar makers may with great profit tap their trees to a depth of four or five inches. The additional injury to the tree is slight, especially if the hole is small and the bark but slightly hewn away. Where a ⅜ inch bit is used and the bark practically uninjured by hewing, a majority of the holes will be grown over the first summer after tapping. If double the amount of sap can be obtained by tapping four inches deep instead of two, and the sap be of nearly equal richness, then it is time to stop giving directions to tap but one inch deep, as many have done on the assumption that the sap from the inner wood was scanty and poor.

In 1892 two trees with as uniform tops as could be found, and standing in thick woodland, were tapped both on the north and south sides. A similar tree was tapped on the south and west sides. With trees 6 and 20 the south side yielded about 23 per cent. more than the north side, while with tree 12 the west side exceeded the south side by about 9 per cent. It is of interest in connection to depth of tapping to note that tree 6 was tapped

1½ inches deep, and trees 12 and 20 2¼ inches deep, all with ½ inch holes. Table 13 gives the results in detail.

TABLE 13.

Flow of Sap From North and South Sides of Trees.

1892.	6.		20.		12.	
	North.	South.	North.	South.	West.	South.
March 25	6.5 lbs.	6.5 lbs.	11.8 lbs.	10.0 lbs.	11.7 lbs.	12.2 lbs.
March 26	2.0 "	2.5 "	6.5 "	7.0 "	3.0 "	3.5 "
March 28	2.0 "	3.0 "	7.5 "	8.0 "	3.0 "	3.5 "
March 30	3.5 "	5.0 "	18.7 "	22.7 "	4.0 "	4.5 "
April 1	4.0 "	6.0 "	16.0 "	18.0 "	5.0 "	5.0 "
April 4	2.0 "	2.5 "	4.0 "	4.0 "	3.0 "	2.5 "
April 10	8.5 "	10.0 "	19.5 "	22.0 "	15.0 "	11.0 "
April 12	8.0 "	9.5 "	19.0 "	22.5 "	20.0 "	14.5 "
April 16	13.0 "	16.0 "	7.0 "	16.0 "	27.0 "	26.0 "
Total	45.5 "	61.0 "	110.0 "	130.2 "	91.7 "	82.7 "

A few observations made in 1893 and 1894 are in accord with the results from trees 6 and 20. Without doubt differences in season and the exposure of the trees to the sun have much to do with the results from tapping on different sides of the trees. As an illustration of the effect of the sun in some instances we will cite the following: In 1893 a thrifty maple standing in a small group of trees and exposed to the sun was tapped on the north and south sides. The excess in favor of the south side was almost wholly due to the yield upon a day when the sun shone brightly but with the temperature but slightly above freezing. The yield was, south side, 11 lbs.; north side, 2½ lbs. There can be little doubt as to the correctness of the common practice of tapping on the south side whenever practicable.

There is a growing tendency to tap trees twice, putting the holes near together and letting the sap from both spouts drop into the same bucket. To test the profit of so doing the following trial was made: Six maples from twelve to sixteen inches in diameter standing near together and with the same exposure were divided into two groups as nearly alike as possible in size, spread of branches, etc.

The trees in group *A* were tapped once with a ½ in. bit, and 1½ in. deep. Those in group *B* were tapped twice, once with

a $\frac{1}{2}$ in. bit and once with a $\frac{3}{8}$ in. bit, the holes being $1\frac{1}{2}$ in. deep and about 4 in. apart. Table 14 shows the yield by trees and by groups.

TABLE 14.

Effect of Tapping Trees once and Twice.

1892.	Group A. Tapped once.			Group B. Tapped twice.		
	14	15	16	17	18	19
March 25	17.7 lbs.	18.5 lbs.	12.7 lbs.	19.0 lbs.	16.0 lbs.	16.5 lbs.
March 26	6.0 "	7.0 "	6.0 "	8.2 "	6.0 "	4.0 "
March 28	7.5 "	9.0 "	8.0 "	8.5 "	7.0 "	4.0 "
March 30	19.0 "	22.0 "	21.7 "	22.0 "	17.5 "	12.0 "
April 1	20.0 "	19.0 "	19.0 "	22.0 "	17.0 "	17.0 "
April 4	5.5 "	4.0 "	8.0 "	5.0 "	3.0 "	2.0 "
April 10	14.0 "	9.5 "	12.5 "	16.5 "	10.5 "	8.5 "
April 12	14.0 "	13.0 "	15.0 "	23.0 "	14.5 "	17.5 "
April 16	12.0 "	6.0 "	16.0 "	14.0 "	14.0 "	6.0 "
Total yield by Trees	115.7 "	108.0 "	118.9 "	138.2 "	105.5 "	87.5 "
Total yield by Groups.	342.6 lbs.			331.6 lbs.		

The trees tapped but once gave slightly more sap than those tapped twice. When we consider the similarity of the trees in the two groups, and the nearly equal flow from all, with the exception of tree 19, it seems certain that little was gained in this case by tapping in the manner described. This is the result of a single trial, but if we remember that sugar makers have gradually changed from the use of the two-inch auger to the half and three eighths inch bit for tapping on the ground that they obtain nearly or quite as much sap with much less injury to the tree, is it not reasonable to expect that holes three or four inches apart should influence the flow from each other? This point has been referred to in connection with tree *T*, table 12. More sap may frequently be obtained by this method of double tapping, but the question arises whether, if we are to tap a tree two or more times, it is not true economy to place the holes as far apart as possible even if extra buckets are required by so doing.

II. MAPLE SYRUP.

The results obtained upon samples of maple syrup are given in the following tables. The sugar season of 1892 was peculiar.

After the sap had flowed for about two weeks, a period of warm weather ensued, which caused the buds to start and stopped the bleeding, but at the end of ten days, the temperature fell and a succession of cold nights occurred which renewed the flow of sap. The syrups of this second period of flow varied scarcely any in purity, reducing sugars and ash, from those of the first period, except the very earliest.

Several determinations of reducing sugars and ash were made, and the estimation of nitrogenous matter attempted. Twenty samples of syrup showed a range in percentage of reducing sugars from 0.09 to 0.27 with an average of 0.168. Ash varied from 0.46 to 1.67 per cent., and the average of eleven analyses was 0.873 per cent. The nitrogen in four syrups ranged from 0.010 to 0.036 per cent.

Experiments in letting sap stand for several days before boiling, filtering sap before boiling, and evaporating sap slowly had no decisive effect on the composition of syrup.

TABLE 15.

Composition of Maple Syrup. 1892.

Description of Sample.	Saccharose.	Solids.	Reducing Sugars.	Ash.	Purity.
1. First run, March 26	69.6	71.0		0.57	98.02
2. " " "	70.2	71.5	0.22	0.68	98.17
4. One week later, April 2	65.8	68.4	0.23	1.10	96.18
8. " " " "	41.0	43.9	0.14	0.46	93.40
9. Just before warm period, April 4	66.0	70.3	0.13	1.15	93.87
10. " " " "	66.4	70.4	0.14		94.32
16. Just after warm period, April 14	62.2	65.8		1.04	94.54
17. " " " "	60.1	64.9	0.18	1.15	92.62
24. Late run, April 27	57.9	62.7	0.27	1.67	92.34
5. White maple, April 2	68.9	70.8	0.14	0.60	97.31
21. " " April 16	48.2	50.1	0.13	0.60	96.20
20. " " April 18	47.8	47.8	0.12	0.59	96.56
7. Run April 1. Boiled at 221° F.	67.5		0.19		
11. " Evaporated at low temperature 3 days, then boiled	56.4		0.09		
13. Same as 11, after standing 4 days	58.1		0.15		
14. Same as 7, after standing 5 days	65.7		0.23		
17. Run April 14. Boiled at 217° F.	60.1		0.18		
18. " Filtered through bone black and then boiled	63.1		0.25		
19. Run April 14. Filtered through quartz sand and then boiled	56.6		0.15		
22. Run April 14. Boiled at 215° F.	43.6		0.18		

In 1893 several samples of syrup were prepared from individual trees, and each syrup was taken off at the temperature of

221° F. The chemical results are shown in table 16. It is evident that there is not a uniform loss of water in each syrup, as the temperature rises, because there is no relation to be found between syrups and saps, and there is no uniformity in the percentage of saccharose or of solids in syrups made upon the same day.

TABLE 16.

Maple Syrup from Sap of Individual Trees. 1893.

Syrup.	Description of Sap.				Composition of Syrup.					
Number.	Spout.	Date.	Per cent. Saccharose.	Purity.	Saccharose.	Solids.	Reducing Sugars.	Ash.	Specific Gravity.	Purity.
5	5	Mar. 24	3.40		67.5					
1	1	Mar. 27			61.5	65.3		0.409	1.3186	94.19
2	2	Mar. 27			67.6	70.6			1.3494	95.74
3	3	Mar. 27			60.8	62.7	0.083	0.298	1.3018	96.96
4	4	Mar. 27			52.4	56.4		0.493	1.2675	92.90
11	5	Mar. 27			59.2	63.8	0.098	0.653	1.3149	92.79
6	6	Mar. 27	3.40	94.19	64.3	67.2		0.522		95.68
7	7	Mar. 27	3.10	92.83	62.6	68.0	0.110	0.620	1.3377	92.06
8	8	Mar. 27	3.20		63.3	68.5	0.170	0.838	1.3421	92.41
9	9	Mar. 27	4.00		63.6	67.3	0.065	0.641	1.3300	94.52
10	10	Mar. 27	4.60	92.74	59.5	66.9	0.102	0.994	1.3376	88.94
21	d	Apr. 10	1.90		63.3	67.2	0.115	0.919	1.3321	94.19
19	8	Apr. 13	2.06		52.4	57.4			1.2773	91.28
20	9	Apr. 13	2.50		57.4	62.7	0.156	0.806	1.3056	91.54
17	4-5	Apr. 16	2.45	90.07	56.4	61.7	0.278	0.957	1.3037	91.41
18	8	Apr. 16	2.03	91.03	63.5	69.4	0.116	1.099	1.3447	91.49
22	8	Apr. 20	1.98	91.24	55.5	60.5	0.100	1.229	1.2943	91.73

TABLE 17.

Composition of Syrups from Mixed Sap. 1893.

Syrup.	Date.	Saccharose.	Total Solids.	Reducing Sugars.	Ash.	Specific Gravity.	Purity.
o. White maple.....	Mar. 25	65.4	68.0	0.225	0.407	1.3289	96.18
13. Rock maple.....	Mar. 25	61.8	67.2	0.200	0.670	1.3270	91.96
12. Rock and white.	Mar. 30	58.5	62.8			1.3081	93.15
14. Rock maple. Soured sap.....	Mar. 30	58.2	63.6	0.540		1.3135	91.49
15. Rock maple. Boiled with frequent addition of cold sap.....	Apr. 10	57.2	63.1	0.070	0.720	1.3079	90.65
16. From same trees as 15. Boiled without adding fresh sap.....	Apr. 10	61.9	68.5	0.216		1.3371	90.36

The syrups from soft maples were somewhat inferior to those from rock maples both in color and flavor.

Delay in boiling sap did not seem to affect the color of the syrup, but injured its flavor. Sap that was kept five days and then boiled gave one of the lightest colored samples produced.

The rapidity of boiling had little influence on the color, samples of syrup from saps that were allowed to slowly simmer away, being as light colored as those from similar saps boiled rapidly.

The lightest colored samples were produced by boiling a quantity of sap until finished without addition of fresh sap. One sample produced by boiling about two quarts of sap in a large glass beaker until it was thick syrup, without addition of sap and without skimming, had little more color than the sap from which it had been made. This sap was from covered buckets and was thoroughly strained through cloth before boiling.

Sap filtered through quartz sand produced a syrup in no way superior to the preceding, while one filtered through bone black lost almost entirely the characteristic maple flavor.

Sap mixed with rain water gave a syrup objectionably dark colored.

To produce a light colored and fine flavored syrup requires that the sap be kept as free as possible from all impurities and thoroughly strained, that it be reduced to syrup with the least manipulation possible, taking care in every part of the process that neither sap nor syrup comes in contact with surfaces that may in any way injure their quality.

In 1893, trials were made at three different times to find out whether by evaporating a weighed quantity of sap to a syrup the full amount of sugar shown by the polariscope in the sap could be recovered in the syrup. The results of such a trial would serve as a check upon saccharose determinations in syrup and sap, and whether there was much inversion up to taking off the syrup.

In one trial, the quantities of saccharose in syrup and sap were equal, while in two the results on sap were lower than those on syrup.

The following table gives the results in detail:

TABLE 18.

Date of Trial.	Sap.			Syrup.		
	Weight Boiled.	Per cent. Saccharose.	Weight Saccharose.	Weight taken off.	Per cent. Saccharose.	Weight Saccharose.
March 27.....	1500 grms	3.40	51. grms.	78.7 grms.	64.30	50.6 grms
March 30.....	4000 "	2.75	110. "	195.1 "	59.20	115.5 "
April 13.....	2700 "	2.00	54. "	91.3 "	63.35	57.8 "

III. MAPLE SUGAR.

As a preliminary to the investigation of problems connected with the maple sugar industry, several samples of sugar were obtained from various sources and analyzed in order to gain some knowledge of the composition of the article. The results are arranged in table 19.

TABLE 19.

Composition of Maple Sugar. 1891.

Sample.	Saccharose.	Solids.	Reducing Sugars.	Ash.	Purity.
1. Dry sugar..	93.3	98.3	0.63	0.99	94.9
3. Dry sugar, very light color.....	87.3	95.4	2.69	1.11	91.5
4. Dry sugar, very light color.....	90.5	96.7	0.92	1.19	93.6
5. Dry sugar, very dark color.....	85.2	96.4	4.51	1.16	88.4
6. Dry sugar...	88.1	95.5	2.76	0.91	92.2
7. Dry sugar.....	91.7	95.6	1.16	0.88	95.9
11. Dry sugar, very light color.....	93.7	98.6			95.0
2. Cake sugar, last run.....	76.8	91.0	7.03	1.23	84.4
8. Cake sugar, soft.....	83.6	88.6		0.92	94.3
9. Cake sugar, medium.....	85.9	90.3		1.04	95.1
10. Cake sugar, hard.....	86.0	92.3		0.88	93.2

The dry sugars contained more solids than cake sugars but the purity coefficient was as high in one form as in the other. Dark sugars contained less saccharose and more reducing sugars than light sugars and had a much lower purity coefficient.

In 1892 a few samples were prepared under different conditions, and the analytical results are given in table 20.

TABLE 20.

Composition of Maple Sugar. 1892.

Sample.	Finishing Temperature.	Saccharose.	Solids.	Purity.
1. Early run. Very light, soft fine grain	230° F.	82.9	84.9	97.6
2. Early run. Light, coarse grain	235° F.	85.9	88.6	96.9
3. Early run. Clarified. Golden, medium grain	240° F.	84.8	88.0	96.3
4. Early run. Clarified and stirred. Finer and lighter than 3	240° F.	85.6	88.5	96.7
5. Early run. Clarified and stirred until cold. Fine	240° F.	91.5	94.8	96.5
6. Late run. Clarified. Burned slightly; dark	240° F.	82.7	88.0	93.9
7. Late run. Clarified and stirred. Burned; lighter than 6	240° F.	83.9	89.5	93.7
8. Syrup had fermented and become slightly acid		58.1	89.0	65.3

Clarifying the syrup and stirring it while boiling improved the color, and the stirring increased the amount of sugar and solids. Numbers 6 and 7 prepared in the same manner as 3 and 4, but from a later flow of sap, yielded the same percentage of solids, but considerably less sugar and burned slightly. This result is similar to results obtained at the Vermont Experiment Station. (Bulletin 26.)

SOME DANGEROUS FRUIT INSECTS

BY CLARENCE M. WEED.

None of the evil effects of the changes which modern civilization has made upon the earth is more evident to the American farmer than the increased difficulty of saving his crops from the ravages of noxious insects and parasitic fungi. Many of us have heard from our fathers and grandfathers of the apples which once grew in abundance in yards and along highways, strangers alike to the codling moth, maggot, or scab, the luscious peaches free from worms and rot, the plums unmarked by the curculio, and the pears that had yet to learn the secret of becoming dwarfed, gnarly, and cracked; of the grapes that knew not how to rot, and the potatoes which had neither been blighted nor bitten by the Colorado beetle. Now all is changed: every crop has foes that often gather the lion's share of the harvest. The enemies have come from the north and the south, the east and the west, from Europe and the islands of the sea, and in our own midst they have flocked from the forest to the field, deserting a wild plant for its cultivated congener, or changing their habits to conform to a new environment.

This increase of noxious insects, however, is the natural result of the changed conditions of things. Among the principal factors tending toward it, may be mentioned: (1) the massing of crops in limited areas; (2) the facilities for transporting insects long distances by vessels and railways carrying agricultural products; (3) the abandoned farms and orchards that serve as breeding grounds; and (4) the destruction of forests and the cultivation of prairies.

Considering each of these factors briefly, we find that the tendency of the first—that of the massing of crops in limited areas—toward increasing our insect pests rests upon the bio-

logical law that the increase of any animal is limited by its food-supply. Under the natural conditions existing on this continent before the advent of the white man, those insects which fed on wild plants had, as a rule, only a limited food-supply. The apple maggot, or railroad worm, for example, is supposed to have bred originally on the wild haws of the woods. The parent flies had then usually to find here and there an isolated tree bearing the fruit in which it deposited its eggs. Its chances of being caught by a bird or entrapped in a spider's web while on this search were very good, so that the scarcity of the food-supply not only directly limited the number of individuals that could be produced, but by being scattered it increased the chances of the adult insects falling a prey to enemies. But in a modern apple orchard all this is changed: the food-supply is almost unlimited, and is so massed together that the insect runs little risk in passing from fruit to fruit, or from tree to tree. Hence it can multiply indefinitely, unless there is some means of checking it. The same line of reasoning applies to a large proportion of our injurious insects.

We are indebted to our commerce on sea and land for many of the most noxious insects. Brought to our shores from Europe, Asia, or Australia by ships, many of these pests have found a land which for them was flowing with milk and honey, and in which their hereditary enemies had not yet gained a foothold. Consequently they have multiplied without let or hindrance; and by natural and artificial means—notably the railroad trains—they have rapidly overrun the country of their adoption.

The abandoned or neglected fields and orchards all over the United States have proven a prolific breeding ground for many insect pests. Too often the efforts of painstaking farmers have been rendered unavailing by the proximity of such sources of infection. An orchard that has outlived its usefulness had better be converted into firewood than left to die uncared for.

The destruction of forests has compelled certain insects to resort to cultivated crops for subsistence; and in some cases a decided change in feeding habits has resulted. So, also, the bringing of the prairies into cultivation has caused many insects

which originally fed on wild grasses, to resort to pastures and meadow lands.

The operation of these various causes, together with the enormous powers of multiplication possessed by the insects themselves, has led to a constantly increasing injury to cultivated crops, until to-day these tiny foes exact a tribute of ten per cent. of the crop products of American agriculture. They form an omnipresent host of taxgatherers, taking possession of the farmer's crops and enforcing their onerous demands without process of law, unless preventive measures are vigorously prosecuted. They are no respecters of persons; like the rain, they fall upon the fields of both the just and the unjust.

"The authorities best able to judge have estimated the annual loss in the United States due to these little pests at nearly half a billion dollars. Noxious insects, according to Dr. C. V. Riley, recently the distinguished entomologist of our National Department of Agriculture, occasion losses in the United States which are 'in the aggregate enormous, and have been variously estimated at from $300,000,000 to $400,000,000 annually.' In single states and single seasons the loss is often frightful in extent. During some of the great chinch-bug epidemics the loss in Illinois occasioned by this one insect has amounted to over $73,000,000 a year; and in seasons not marked by an outbreak of such a great crop pest the injury is much more severe than is ordinarily supposed. The official entomologist of the state just named, Professor S. A. Forbes—after years of careful field observation and statistical study—has recently expressed his belief that 'the insects of the state of Illinois derive as large a profit from the agriculture of this great agricultural state as do the farmers themselves.'" *

Fortunately, however, there is an extended silver lining to this dark cloud of insect injury. If these creatures have increased on every hand, our knowledge of methods of controlling them has also augmented with the passing years. Many of the remedies proposed ten or twenty years ago, seem now foolish and impracticable. Within the last decade especially, the progress has been phenomenal. It has been shown that many

* C. M. Weed, Popular Science Monthly, March, 1893.

insects can be checkmated by a proper crop rotation; that the natural enemies of others can be used to destroy them; and that others are easily killed by improved insecticides. But the most important advance has been the introduction of the spraying machine, an apparatus by means of which insect killing substances may be easily and rapidly distributed over the surfaces of trees, shrubs, vines, and herbaceous plants. As I have elsewhere said, its introduction into American horticulture marks an advance almost as important as was marked by the advent of the improved cultivators into our agriculture. Before the latter were introduced the weeds that infest the soil were fought by the hand hoe, but now a single team does the work of many men. In the same way until recently various laborious and partially effective methods were used in fighting noxious insects and destructive fungi; but now many foes of both these classes are fought on a large scale by the force-pump and spray nozzle, and every season adds others to the list of those against which this method may be successfully used. With a large class of farmers and fruit growers, spraying has become a recognized part of the season's operations, and therein lies the chief promise of the method. When the belief becomes general that it is as important to save a crop from destruction by its foes as it is to produce it; that fighting noxious worms must take its place as a farm process by the side of that of fighting noxious weeds; that the parasitic plants which absorb the vitality of leaf and fruit are as dangerous to the crop as the plants which dispute with it the possession of the soil—and when along with this recognition there is placed before the farming community a cheap and wholesale method of preventing the injuries of these organisms, then the vast annual loss now suffered because of insects and fungi will be very greatly lessened.

The introduction of destructive insects still continues and is likely to continue for many years to come. At present there are two recently introduced insects that have not yet appeared in New Hampshire so far as known, but which are liable to reach us at any time and to become very destructive. I refer to the Gypsy Moth and the San Jose Scale. There are three other insects—the Pear Midge, Pear Tree Psylla, and Bud

Worm—which are probably present in some parts of the state, but which have not yet become so injurious as they have in neighboring states. The purpose of these pages is to warn the fruit-growers of the state of the threatened danger, and to give them the information necessary for recognizing and combating the pests when they do appear. For the facts I am especially indebted to the publications of the Department of Agriculture, the State Entomologist of New York, and the experiment stations of New Jersey and the Cornell University. The illustrations have come from the same sources, and should be specifically credited as follows: After Slingerland, Figs. 3–8; after Howard, Figs. 10–14; after Taschenburg, Figs. 15–18; after Linter, Fig. 1; after Riley, Fig. 2.

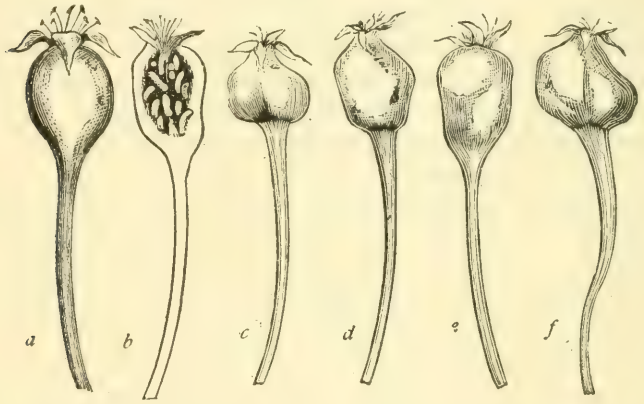


FIG. 1. Pear Midge Injury: *a*, uninjured young pear; *b*, infested pear cut open to show midge larvæ; *c*, *d*, *e*, *f*, outlines of infested fruits.

The Pear Midge.

Diplosis pyrivora.

This insect appears to have been introduced into America about 1877, being first noticed in Connecticut. It has since spread into a number of neighboring states, and has become in many localities the most destructive enemy of the pear. The adult is a small mosquito-like grayish fly (Fig. 2, *c*) having a slender body, long legs, and a long ovipositor project-

ing from the end of the abdomen. These flies appear in the pear orchard in early spring, even before the blossoms open, and continue present about ten days. As soon as the blossoms open sufficiently for the insect to insert its ovipositor, the eggs —often nearly a dozen in number—are deposited inside the blossom envelopes. Three or four days later the eggs hatch into little maggots which enter the open ovary of the embryo fruit, where they feed upon the growing tissues, gnawing and rasping it in such a manner as to destroy the core and seeds, and cause the fruits to become dwarfed and deformed. Such pears are ill-shapen in outer appearance, as shown in the series represented in Fig. 1. The midge maggots at first are whitish in color, but they soon become orange or reddish. They become full-grown early in summer: they are then "about one-

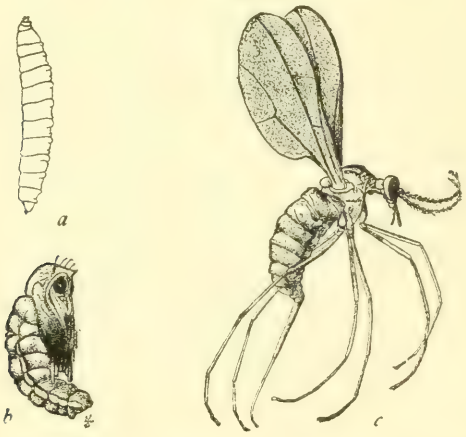


FIG. 2. Pear Midge: *a*, larva; *b*, pupa; *c*, parent fly. Magnified.

sixth of an inch in length, pointed towards each extremity, yellow in color, with a brown, horny breast bone on the under side just behind the head. The segments of the body are well-marked, and when removed from the infested fruit they move about quite rapidly, bending themselves quite double by drawing the tail forward until it touches the head, and then jerking or springing upward and outward several inches at a time.

When they are full grown they remain in the fruit until there comes a rain, which causes a rapid decay and a cracking open of the infested fruit. Through the openings so made they emerge and drop to the ground."* They then enter the soil an inch or two where somewhat later they make oval cocoons of silk mixed with particles of earth or sand: in these cocoons they apparently remain unchanged until the following spring when they become pupæ and shortly afterwards again change to adult flies.

These midges appear to have decided preferences among varieties of pears, the Lawrence being the favorite.

Remedies.—The only stage at which this insect is liable to injury without detriment to the trees is when the larvæ are in the ground. Professor J. B. Smith of New Jersey has found that they then can be destroyed to advantage by the application of kainit applied about the middle of June to the ground beneath the trees at the rate of 1,000 pounds to the acre. This is dissolved by the soil moisture and causes the death of the naked midge larvæ. In case an orchard is generally infested Professor Smith recommends the following practice: "Cultivate as usual, or, if the orchard is in grass or clover, plow under after June 15th, as soon as may be. Top-dress with kainit, 1,000 pounds to the acre, to benefit trees as well as to kill insects. As soon as proper, say early in August, sow crimson clover. This will use up the potash not required by the fruit trees, and will store nitrogen, as well as occupy the ground. Early in the following spring turn this sod under as deeply as may be proper. It should be done before the pear buds are developed, in order to head off and destroy any midges then in the pupa state near the surface of the soil."

The Pear-tree Psylla.

Psylla Pyricola.

This is an extremely minute insect, which during recent years has done great damage to pear orchards in several eastern states. It was apparently introduced into Connecticut early in

* J. B. Smith.

the present century; since then it has spread west to Ohio, Michigan, and Illinois, south to New York and New Jersey, and probably over much of New England, though here it has been reported as destructive only in Massachusetts and Connecticut.



Fig. 3 Pear Psylla. Magnified.

The adult pear psylla is a small, jumping louse about one tenth of an inch long, resembling, when magnified, Fig. 3. It has four nearly transparent wings, and is reddish with transverse dark stripes on the abdomen. There are two distinct forms. The summer broods are much lighter in colors than the brood which passes through the winter. This difference is so great that the two forms were considered distinct species until the life history was carefully worked out by Mr. M. V. Slingerland.

The dark form passes through the winter in some sheltered situation about the tree, such as beneath loose bark, or in the crevices between the branches. In early spring they come forth from their hiding places and deposit their eggs about the buds and on rough bark. These eggs are very small, and of the extraordinary form represented in Fig. 4. When first deposited they are yellowish, but turn dark soon afterwards. The eggs hatch in three or four weeks, the time depending largely on weather conditions. The young psyllas, which during their immature stages are called nymphs, crawl to the stalks of the unfolding leaves, in which they insert their tiny beaks to suck out the sap. They grow rapidly, occasionally moulting or shedding their skins to provide for their increase in size, and in the course of a month become mature.

The first summer brood thus developed deposits eggs on the under sides of the leaves. These eggs hatch ten days later, and mature in about three weeks. The insects of the second brood suck the sap from the leaves. There are several of these summer broods, the number varying with the



Fig. 4. Egg. Magnified.

locality and length of season. In early autumn the dark, hibernating winter form is developed.

The sap which passes through the bodies of these little creatures is ejected on the foliage, and forms the so-called "honey dew." Where the insects are very numerous this becomes very abundant, falling in showers when the branches are disturbed. After the honey dew has been present for some time a peculiar black fungus develops upon it, and gives the tree a sooty appearance.

Mr. Slingerland makes the following statement concerning the indications of the presence of the pest: "Among the first indications that pear growers, who suffered from this pest in 1891, had of its presence, was the noticeably lessened vitality of their trees early in the season. Old trees, especially, put forth but little new growth. Where new growth started, in many cases the shoots began to droop and wither in May, as if from a loss of sap. A little later, whole trees put on a sickly appearance; the leaves turned yellow and the fruit grew but little. By midsummer nearly all the leaves and half-formed fruit fell from many trees."

Remedies.—This insect can be destroyed by spraying in spring after the eggs hatch out and before the first brood matures, with kerosene emulsion diluted with twenty-five parts of water. This is a simple and satisfactory remedy; if applied soon after a shower has washed off much of the honey dew it is more effective.

The Bud-worm.

(*Tmetocera ocellana.*)

There is evidence to show that this insect was introduced to America from Europe early in the present century. It now occurs over a large portion of Canada and the United States, and sometimes is very destructive over wide areas, occasionally becoming the most serious orchard pest of the season. As soon in spring as the buds begin to open, the little caterpillars may commence work upon them, gnawing the miniature leaves and blossoms, but the attack is more likely to begin after the

buds about half open. The larvæ then eat out the centres of the buds, where the leaves and flowers are least developed. The caterpillar forms for itself a protecting case by using silken threads to bind together the leaves. As the season advances some of the leaves are killed, become detached at the base, and turn brown; the blossoms also are more or less webbed, so that the smaller branches present an appearance similar to accompanying illustrations.

The life-history of this insect may be summarized as follows: The moths appear in the orchard early in summer; during daylight they rest upon the bark of trees or other shelter; at night they fly about and deposit their eggs, one in a place on the under side of the leaves. About ten days later these eggs hatch into small green larvæ, which feed upon the epidermis of the leaves, each making for itself a silken tube and a thin layer of silk for protection and concealment. In a day or two the green color changes to brown.

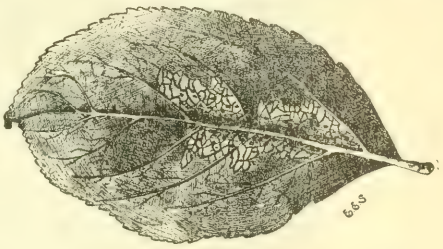


FIG. 5. Apple leaf showing work of young bud-worm.

"As the larva increases in size and the area over which it feeds becomes larger, the tube is enlarged and lengthened along the midrib, sometimes becoming nearly one inch in length. The silken web under which the larva feeds covers the entire field of operations, but is so thin near the edges where the larva has last fed as to be scarcely visible. The excrement of the larva being retained by the web appears as little black pellets scattered here and there over the feeding ground."*

The green portion of only one side of the leaf is eaten, the veins and veinlets being left untouched: these and the green of the opposite side die and turn brown, and thus become conspicuous.

* M. V. Slingerland.



FIG. 6. Work of bud-worm among opening leaves.

Late in summer or early in autumn the half-grown caterpillars desert the leaves and crawl upon the twigs, where they form little silken cases, generally near the buds or in creases in the bark. In these cases they remain throughout the winter. The following spring they emerge to feed upon the opening leaves. They again make tubes, which serve as protective cases. After feeding six or seven weeks they become full-grown: then they form silken cocoons, generally in a rolled leaf or between two leaves, in which they change to pupæ, to emerge a short time later as moths.

The full-grown larvæ are cinnamon brown in color with the head, legs, and shield behind dead black. They are about half an inch long and of the general form shown in Fig. 8, *c*.

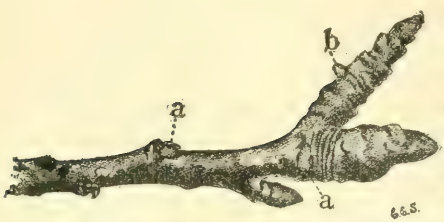


FIG. 7. Twig showing the position of the winter homes of the larvæ at *a*, *a*, and *b*, natural size.

The moth Fig. 9, has a general resemblance to the common codling moth. It is dark ashen gray with creamy white blotches on the front wings, which expand a little more than half an inch.

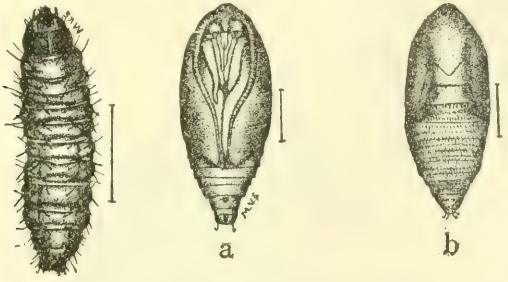


FIG. 8. Bud-worm: *a*, pupa, front view; *b*, pupa, back view; *c*, larva. Magnified.

Remedies.—These little pests can most successfully be destroyed by spraying with the arsenites early in spring when the buds are opening and the larvæ just beginning the season's work. It is advisable to use the Bordeaux mixture and Paris green combination in order to prevent injury by apple scab or other fungous maladies as well as insects.



FIG. 9. Bud Worm Moth.

The San José Scale

Aspidiotus perniciosus.

This insect is related to the common oyster-shell bark-louse, but can at once be distinguished from the latter by the characteristic round scale—as shown at *b*, Fig. 10.

It infests practically all kinds of deciduous fruit trees and if unmolested is liable to kill them. It was introduced into California from Chili about 1870, since when it has spread over a large portion of the Pacific slope; and has lately appeared in the eastern states, where it threatens to do much damage.

Mr. L. O. Howard describes the San José Scale as "perfectly round, or at most very slightly elongated or irregular. It is flat, pressed close to the bark, resembles the bark of the

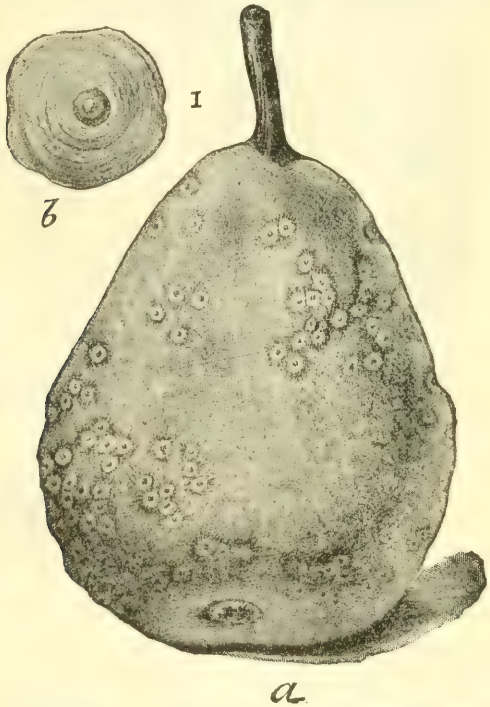


FIG. 10. San José Scale: *a*. pear, moderately infested—natural size; *b*, female scale—enlarged.

twigs in color, and when fully grown is about one-eighth of an inch in diameter. At or near the middle of each scale is a small, round, slightly elongated black point; or this point may sometimes appear yellowish. When occurring upon the bark of the twigs or leaves and in large numbers, the scales lie close to each other, frequently overlapping, and are at such times

difficult to distinguish without a magnifying glass. The general appearance which they present is of a grayish, very slightly roughened scurfy deposit. (Fig. 11.) The natural rich reddish color of the limbs of the peach and apple is quite obscured when these trees are thickly infested, and they have then every appearance of being coated with lime or ashes. When the scales are crushed by scraping, a yellowish oily liquid will appear, resulting from the crushing of the soft yellow insects beneath the scales, and this will at once indicate to one who is not familiar with their appearance the existence of healthy living scales on the trees."

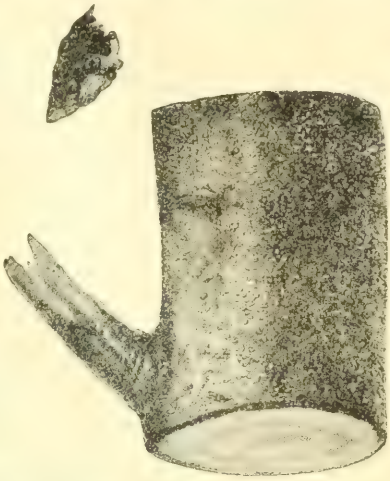


FIG. 11. San José Scale: Apple Branch, with scales in situ—natural size; enlarged scales above, at left.

The young scale lice hatch from eggs beneath the female scales, in spring, soon after the unfolding of the leaves. They are minute yellowish creatures, resembling Fig. 12 when highly magnified; they crawl about over the bark a short time, and finally fasten themselves to it, generally on the new growth, where they secrete a scale and there develop. Some of them mature into little two-winged creatures, resembling, when magnified, Fig. 14; these are the males: others develop into females, which do not become winged but remain on the bark in a fixed position. In the bodies of these the young are produced, as shown in Fig. 13.

When the San José scale occurs upon older trees, it is most likely to be found on the twigs and smaller limbs, but upon young trees it may occur over the whole surface. But it does not confine its attacks to the bark, for the leaves and fruit are often infested: upon the latter there is a very characteristic purplish ring around each scale. These rings are well illustrated in Fig. 10. "Upon the leaves the insects have a tendency

to collect along the midrib, on the upper side of the leaf, in one or more quite regular rows, and also to some extent along the side ribs. The infested leaves turn brown, but do not have a tendency to fall as a result of the damage."

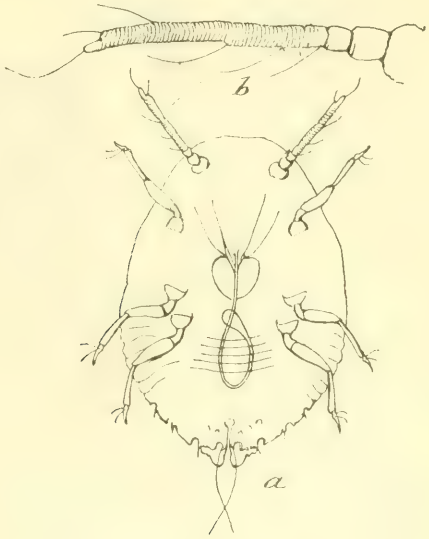


Fig. 12. San José Scale: *a*, young larva—greatly enlarged; *b*, antenna of same—still more enlarged.

This pest is most likely to be introduced into new localities upon nursery stock imported from infested regions. This is believed to be the way in which it was first brought to the Eastern states. It is also likely to be carried upon fruit sent to market. In a given locality the insects are most likely to be carried from tree to tree and orchard to orchard by the young lice crawling upon insects and birds and then crawling off after they have lit upon other trees. They may also be blown about by the wind.

The young lice are easily destroyed by spraying with kerosene emulsion. But in cases where the insect is first introduced to a new locality, the infested trees should be burned to check the outbreak.

PREVENTING THE SPREAD OF THE SCALE.

Concerning this Mr. L. O. Howard, entomologist to the U. S. Department of Agriculture, says: "The principal mode of spread is by commerce in nursery stock, cuttings, and fruit. The time will come in the immediate future when some kind of quarantine regulations will have to be established by states, or by large fruit-growing districts. Should this species already

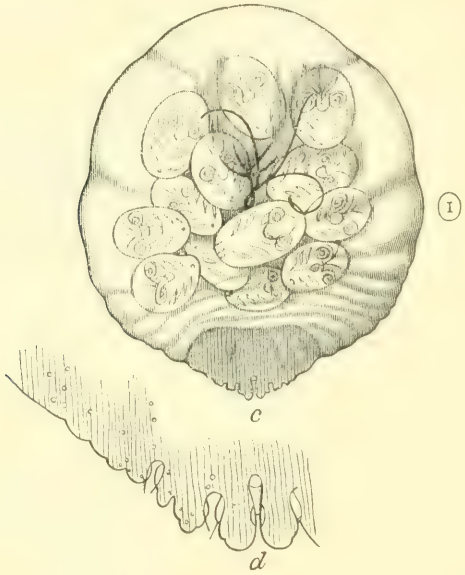


FIG. 13. San José Scale: *c*, adult female containing young—greatly enlarged; *d*, anal fringe of same—still more enlarged.

have obtained the firm foothold in the East which we suspect, New York, Michigan, and other states, in which the pomological interests are great, should immediately, by act of legislature, establish quarantine regulations similar to those in force at the present time in the state of California. In the meantime no orchardist should admit a single young fruit tree, or a single cutting, or a single bud, from a distance into his orchard, without first carefully examining it, and satisfying himself absolutely that

it does not carry a single specimen of the San José scale. If this plan is adopted by every one interested, and without exception, the rate of spread of the species can be limited to the natural spread by crawling, by winds, and by the aid of other insects and birds.



FIG. 14. San José Scale: male adult—greatly enlarged.

"We wish particularly to impress upon the minds of fruit-growers that as soon as this insect is found to occur in an orchard the most strenuous measures must be taken to stamp it out. No halfway measures will suffice. The individual must remember that not only are his own interests vitally at stake, but those of the entire community in which he resides. Trees badly infested should be instantly burned, as previously stated. The individual may think that he cannot bear the loss, but the loss in consequence of the slightest neglect will be much greater. The fact, too, that there is a community of interests among fruit-growers in this matter must not be lost sight of. Fruit-growers must be mutually helpful in an emergency like this."

The Gypsy Moth.

Ocneria dispar.

Fortunately this notorious insect, which our Massachusetts neighbors are striving hard to subdue, has not yet been found in New Hampshire. It is sincerely to be hoped that it may never be found here; but as we are so near the infested territory it seems worth while to include in this connection a brief notice of the pest.

The Gypsy moth is one of the most troublesome insects in Europe. It feeds on an extraordinary variety of plants, attacking almost everything, and is difficult to destroy by natural or artificial means. As is well known it was introduced into the vicinity of Boston twenty-five years ago, and has since become very destructive in that region. In 1891 the legislature of Massachusetts established a commission for the extermination of the insect, and has since appropriated a large amount of money to carry on the work, which has already checked the outbreak to a remarkable degree. It is much to be hoped that the work will be continued unabated for several years.



FIG. 15. Gypsy Moth. Male.

There is an idea somewhat prevalent that this insect could be exterminated by importing parasites, but this is fallacious. In my opinion it would be a great mistake to abandon the work of extermination and leave it to be done by parasites. Under the most favorable conditions there could only result a long series



FIG. 16. Gypsy Moth. Female.

of oscillations in the numbers of the moths, in which periods of destruction would alternate with periods of immunity.

The later stages of the Gypsy moth are illustrated in the accompanying figures. The male moths are much smaller than

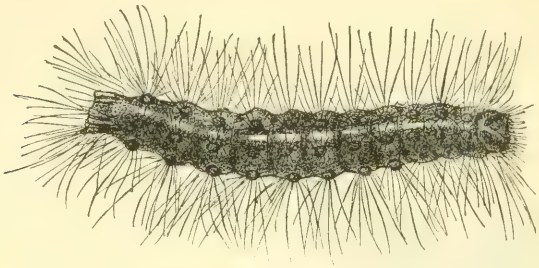


FIG. 17. Gypsy Moth Caterpillar.

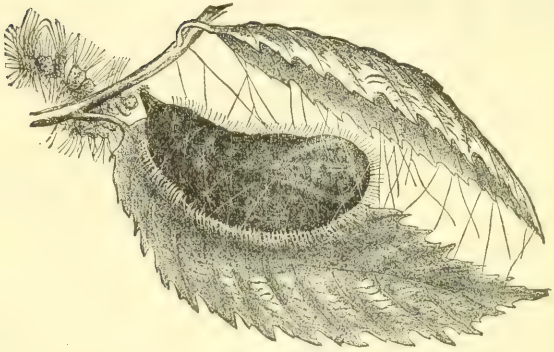


FIG. 18. Chrysalis of Gypsy Moth.

the females. "The full grown caterpillar is about an inch and three fourths in length, very dark brown or black, finely reticulated with pale yellow. There is a pale yellow line along the middle of the back and a similar one along each side. On the first six segments following the head there is a bluish tubercle, armed with several black spines on each side of the dorsal line, and on the remaining segments these tubercles are dark crimson red. In the middle of the tenth and eleventh segments there is a smaller red tubercle notched at the top. The whole surface

of the body is somewhat hairy, but along each side the hairs are long and form quite dense clusters."*

Should any one in New Hampshire find an insect answering to this description they would confer a favor by sending it, securely packed, to the writer. Information concerning the presence of any of the pests described in these pages would also be appreciated.

* Fernald.

TREASURER'S REPORT.

The New Hampshire Agricultural Experiment Station
in account with
The United States Appropriation.

DURHAM, N. H., July 28, 1894.

DR.

1894.

To receipts from the treasurer of the United States, as per appropriation for the year ended June 30, 1894, under the act of congress approved March 2, 1887 . . . . . $15,000.00

CR.

By expenditure for :

Salaries	$8,327.94
Library	61.28
Labor	2,242.68
Live stock	114.50
Printing	629.82
Stationery and postage	62.66
Travelling expenses	28.43
Tools and machinery	265.97
Trustees' expense	124.40
Field experiments	526.71
Feeding experiments	1,554.16
Chemicals and apparatus	246.77
Fuel, gas, and water	23.68
Permanent improvements	532.52
Furniture	2.10
Ass'n agricultural colleges and experiment stations (fee)	15.00
Incidental expenses	241.38
	$15,000.00

This is to certify that, as the authorized auditors of the board of trustees of the New Hampshire College of Agriculture, we have examined the accounts of the Agricultural Experiment Station for the fiscal year ending June 30, 1894, and find them correct; that the above is a true balance sheet corresponding with the said accounts; that the said accounts show that the sum of five hundred thirty-two dollars and fifty-two cents, and no more, was expended for permanent improvements, and that there is no cash balance.

CHAS. S. MURKLAND,
ALBERT DEMERITT,
JOHN G. TALLANT,
Auditors.

I hereby certify that the foregoing statement is a true copy from books of account of the institution named, according to my best knowledge and belief.

FREDERICK SMYTH,
Treasurer.

APPENDIX

OUTLINES OF THE CLASSIFICATION OF PLANTS

OUTLINES

OF THE

CLASSIFICATION OF PLANTS

TOGETHER WITH

ELEMENTARY EXERCISES IN PRACTICAL BOTANY

By Charles H. Clark, A. M., F. R. M. S.

Principal of Sanborn Seminary: Instructor in Botany in the New Hampshire College Summer School of Biology.

DURHAM, NEW HAMPSHIRE
N. H. College of Agriculture and the Mechanic Arts
1895

Copyright, 1895,

BY THE NEW HAMPSHIRE COLLEGE OF AGRICULTURE
AND THE MECHANIC ARTS.

PREFACE.

The following pages were originally prepared for the New Hampshire College Summer School of Biology, and are here published to be available for the School. They are the outgrowth of a conviction that students of elementary botany should secure a bird's eye view of the whole vegetable kingdom, and that their studies should be directed to the habits of life and growth and to the modes of development which are believed to have produced the great variety of plants now existing on the earth by successive slow changes from simple forms.

The classification is intended to serve the student as a chart in his practical work in the laboratory. There is a real advantage in locating the specimens studied in the ascending scale of plant life, even if, in the present condition of the science of botany, no system of classification can be considered as anything more than tentative in its more minute details.

The practical studies are not intended to be exhaustive, but merely suggestive. So far as time permits, they may be extended, and similar studies may be made of other plants. It has not seemed best to burden the pages with minute descriptions of the more general processes in microscopical technique. For detailed statements of all microscopical manipulations, and for directions in preparing staining fluids and other reagents, the reader is referred to the author's Practical Methods in Microscopy, published by D. C. Heath & Co., Boston.

Many of the illustrations are original. A much larger number would have been used, had time permitted. Those marked "original," have been drawn by Mr. L. H. Kittredge of the junior class of the college from nature or from microscopic preparations or photo-micrographs either for this publication or for Professor Weed's "Cultivation of Biological Specimens" published in the last New Hampshire School report, in which case they are here republished by permission of Superintendent Gowing; the half-tones are from photo-micrographs; the remaining figures have been taken with Professor Weed's permission from his Fungi and Fungicides, in which book their original sources are noted.

C. H. C.

Biological Laboratory of Sanborn Seminary.
Kingston, N. H., May, 1895.

THE CLASSIFICATION OF PLANTS

INTRODUCTION

Good authorities estimate that there are more than 150,000 species of plants. In the study of this vast number of different forms we need a skeleton for the tissues of our knowledge—the muscles and arteries and nerves of our knowledge, so to speak—to grow upon; a framework to build over that will give form and substance to our ideas, placing the facts acquired in positions where we shall be able to find and use them. Such a skeleton or framework is furnished in the classification of plants.

The first task of the botanist is to divide all existing plant-forms into a number of great groups or branches; then divide and sub-divide these branches until the individual form is reached. Many and various schemes of classification have been employed, which differ more or less in accordance with the varying ideas of different investigators, and because of the impossibility of agreement as to the position of certain forms. In the case of the cryptogams, the difficulties of classification are especially great. New plants are frequently discovered. New facts come to light about known organisms which sometimes show that forms which have been considered as separate plants are really only different stages in the development of a single plant; and points that have been considered as fixed in the classification become unsettled. Any classification, especially in the case of the lower groups, must, therefore, be looked upon as merely provisional, and subject to change as investigations bring to light new knowledge. The development of plant life has not been direct from the simple one-celled plants up to the complicated structures of the highest types, but different lines have been followed, producing puzzling complications when an attempt is made to locate the forms in a classification.

To gain a clear and consistent conception of plant life, the logical order of study is from the lowest to the highest forms. In the lowest forms, we come closest to the processes of nature, and, as we advance in the study of the higher orders, our development in knowledge follows nature in her development of processes. In the lowest forms, we study simply masses of protoplasm; as we go on from one simple plant to another of somewhat higher type, we learn how, under the mysterious laws of nature, the same elementary substances are combined to produce the myriads of different forms of plant structure. Botany becomes to us something very different from the assorting of various forms and memorizing barbarous Latin and Greek names, which has, until recent years, been the popular conception of the science. I would not underrate the value of the knowledge how to determine the name of a plant by means of a key to the classification, but I would inveigh in the strongest terms against that view of the science which still prevails in many schools that the sole purpose of the study of botany is to learn the names of plants. How one can become enthusiastic over such dry bones of knowledge, I cannot understand. I can easily understand how one may become wholly absorbed and carried away by the study of the workings of nature in building up the vast number of beautiful and curious forms of plant life, the true province of the study of botany.

Our tabular views show the most commonly accepted schemes of classification. Investigators are agreed in dividing all known plants into two great divisions, cryptogams and phanerogams, though, as we shall see, in the present state of knowledge, the reasons that lead to the use of these terms are proved to have been based upon a lack of knowledge and misapprehension of facts.

The more detailed study of the so-called cryptogamous plants that has become possible in recent years, because of the perfection in the high powers of the microscope, has led to as clear a knowledge of their modes of reproduction as is had in the case of the phanerogamous plants. The principal distinction between these two divisions is not now, as it was formerly, that the man-

ner of reproduction is known in the case of phanerogams and unknown in the case of cryptogams, but that the modes of reproduction are different. In the case of the cryptogams, the first step in the reproduction is either the fission of cells or it is the passage of a self-motile mass of protoplasm, an antherozoid or male element, to a motionless mass of protoplasm constituting the female element, the presence of moisture being always necessary for the movement of the antherozoids. In the phanerogams the first step is the extension of the pollen-tube, which is an outgrowth of the inner coating of the pollen-grains, into the embryo-sac, contact with the viscid secretion of the stigma being a necessary prerequisite to the growth of the pollen-tube. As the pollen-grains are not self-motile, nature provides for their transportation from the anther to the stigma by the adaptation of the various parts of the flowers to this end, and by rendering the flowers attractive to various insects, either because of the nectar which furnishes food for the insects or because of their colors which attract or serve as a means for concealment or protection for them. The visits of these little creatures carry the pollen from anther to stigma on the same or on different flowers.

A second point of quite general agreement is a division into the four groups of thallophytes, bryophytes, pteridophytes, and spermaphytes. Gray followed this grouping in his "School and Field Botany," reversing the order and giving the main attention to the spermaphytes or phanerogams, passing over the three lower groups with brief and very inadequate descriptions of some of their chief characteristics. Beyond this grouping there is less agreement among the authorities.

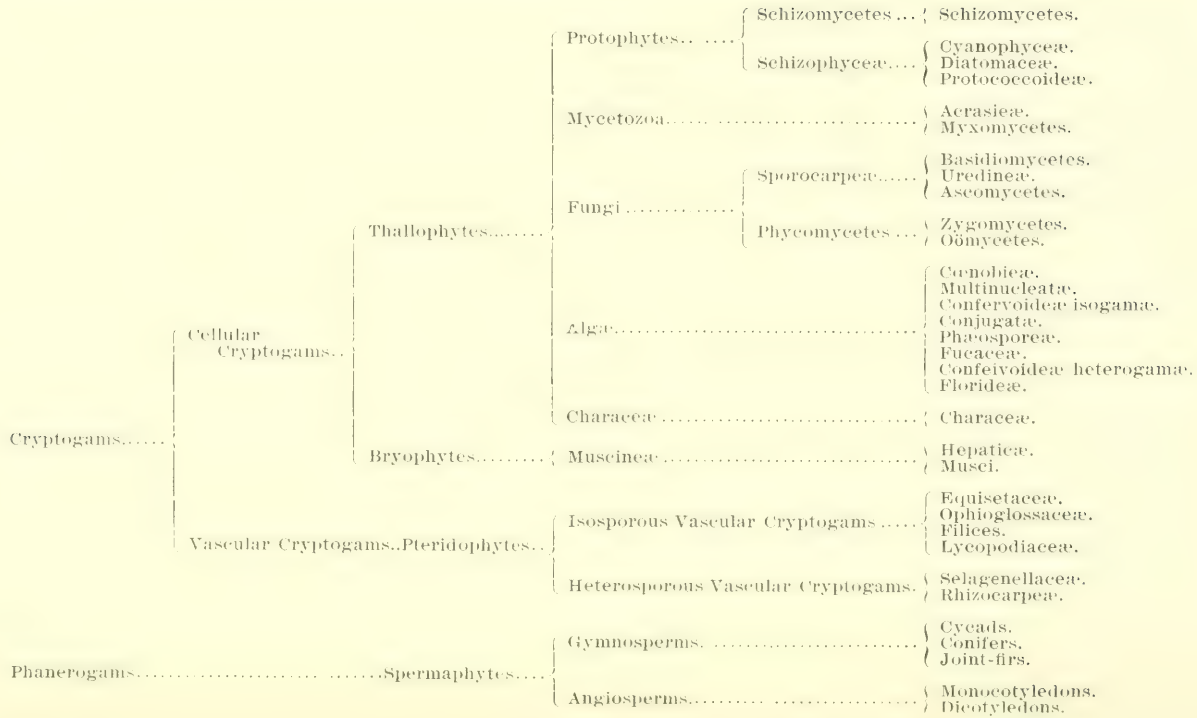
The division into branches shown in the first tabular view was first proposed by the eminent botanist Sachs, and was introduced into this country by Professor Bessey in his "Essentials of Botany." This classification is based mainly on the character of the sexual organs. It is open to the serious objection that it places plants which are totally different in all particulars except the mode of sexual reproduction in the same class. It has been followed to a considerable extent in this country, but has never been accepted by many of the highest European authorities.

The second tabular view shows a scheme of classification based mainly on morphological characteristics. It has been adapted from the classification given in Bennett and Murray's "Hand-book of Cryptogamic Botany," the order being reversed and the phanerogams added. It gives the classification of plants corrected by the advances made in knowledge up to a recent date, and will form the skeleton for the following pages.

FIRST TABULAR VIEW.

Cryptogams	Cellular Cryptogams	Group I. Thallophytes	Branch I. Protophytes	Class I.	Myxomycetes.
				Class II.	Schizomycetes.
				Class III.	Cyanophyceæ.
			Branch II. Zygophytes	Class I.	Zoösporeæ.
				Class II.	Conjugatæ.
			Branch III. Oöphytes	Class I.	Zoösporeæ.
				Class II.	Oedogonieæ.
				Class III.	Coeloblasteæ.
				Class IV.	Fucaceæ.
			Branch IV. Carpophytes	Class I.	Coleochæteæ.
				Class II.	Florideæ.
				Class III.	Ascomycetes.
				Class IV.	Basidiomycetes.
				Class V.	Characeæ.
		Group II. Bryophytes	Branch V. Bryophytes	Class I.	Hepaticæ.
				Class II.	Musci.
	Vascular Cryptogams	Group III. Pteridophytes	Branch VI. Pteridophytes	Class I.	Equisetinæ.
				Class II.	Filicinæ.
				Class III.	Lycopodinæ.
Phanerogams		Group IV. Spermaphytes	Branch VII. Spermaphytes	Class I.	Gymnosperms.
				Class II.	Angiosperms.

SECOND TABULAR VIEW.



I

THE PROTOPHYTES

The Protophytes, as the name signifies, include the lowest forms of plants. The plants are unicellular and are without sex. The reproductive process is by the internal division of the cell. The newly formed cells separate at once, and do not in the least tend to form tissues, or to become differentiated into other kinds of cells.

There are two groups of Protophytes.

GROUP I. THE SCHIZOMYCETES.

GROUP II. THE SCHIZOPHYCEAE.

GROUP I. **The Schizomycetes** (*The Bacteria or Fission Fungi*).—There is only one class in this group. That the Bacteria belong in this place in the classification admits of serious doubts. To find that they are related to any other group of plants is equally, if not more, difficult. Some authorities place them by themselves as a group of the *Protista*,—organisms that are neither plants nor animals, but possess characteristics of both kingdoms.

The nutrition of the Bacteria is in general that of saprophytic plants, *i. e.* of those that live on decomposing organic matter. Some forms live as parasites. This is the fact in the case of the forms which thrive in the living tissues of animals, producing disease. At least three species, *Bacillus virens*, *Bacterium chlorinum*, and *Bacterium viride*, are known to contain chlorophyl, and their nutrition must be in part or wholly holophytic, *i. e.*, like that of the green plants. Some species live and multiply in solutions that contain no organic matter, a fact which tends to support the theory of evolutionists that the earliest forms of life were *protists*, and that plants and animals have developed from these by gradual evolution in different directions, which have been determined by local conditions.

Many forms of bacteria possess the power of moving from place to place. These motions are in some cases believed to

be produced by the action of cilia; in other cases, it is believed that they are caused by contractile movements of the protoplasm.

The ordinary mode of reproduction of bacteria is by the tranverse fission of the cell. In some cases the newly formed cells separate; in other cases they remain in contact, held together by a hyaline, gelatinous secretion, forming filaments of some length. Another mode of reproduction, which obtains in some species when the conditions of nutriment and moisture are unfavorable for the fission of the cells, is by the formation of spores. These spores form in the centre of most of the cells, one in each. They are the resting condition of the organism and possess much greater vitality than the cells. In the spore condition the bacteria may exist for indefinite periods of time, and will endure much higher temperatures than the ordinary forms. In this condition they are wafted about from place to place in the air. When they meet with conditions favorable to the life of the organism the spores develop into cells, which multiply by the usual process of fission.

Bacteria occur everywhere, accomplishing both good and harm. The air, in its purest condition, contains numerous spores. Putrefaction of all kinds is brought about by the direct agency of these organisms. It is settled beyond dispute that many infectious diseases are caused by bacteria, and it is now considered as pretty well established that the specific bacteria causing some of these diseases are definitely known. Other bacteria are not only harmless but are believed to be essential to life in aiding in the digestion of the food. Other forms are absolutely essential to the life of the higher plants in bringing about the nitrification of the soil, thereby furnishing nitrogen, one of the principal food materials for plants.

Bacteria exert a very important influence on the substances in which they grow. In the case of the pathogenic, or disease producing bacteria, by-products, known as ptomaïnes and toxins, are formed. These poisonous products are the active influences in causing the disease. These poisons have been isolated from the bodies of animals that have died of different diseases. When tried on animals known to be capable of taking these

diseases, they are found to work with great virulence. Again, ptomaïnes and toxins are formed by various species of bacteria that do not thrive in animal bodies. Notable instances are the poisons produced by the bacteria that cause the changes in fish, meat, and ice cream. It is fortunate, however, for man and animals that the products of metabolism of by far the greatest number of bacteria are not poisonous, so that the bacteria which we are constantly taking into our systems with our food and water, only in exceptional cases work injury. Some putrefactive bacteria act as organized ferments. The conversion of the sugar of milk into lactic acid by *Bacterium lactis* in the souring of milk, and the production of acetic acid from alcohol and oxygen by *Bacterium aceti* in the souring of wine, are examples. The nitrification of the soil already mentioned is still another example of the action of a bacterial ferment.

Various classifications of bacteria have been proposed, but none are very satisfactory on account of the difficulties in the way of their study, and because of the still undeveloped state of bacteriology as a science. It is not yet settled but that forms which are now generally considered as genera may be different stages in the life history of the same species, so that the study of the morphology of bacteria gives very indefinite results. It is, however, convenient to distinguish the different forms in a rough way, and the following names have been adopted: *Bacterium* denotes a short, thick, straight rod; *Bacillus*, a longer, slimmer, straight rod; *Leptothrix*, unbranched filaments in which the segments can usually be distinguished only after treatment with stains; *Micrococcus*, a small sphere: *Vibrio*, *Spirochæta*, *Spirillum*, coiled forms. De Bary illustrates the three principal forms by "a billiard ball, a lead pencil, and a corkscrew."

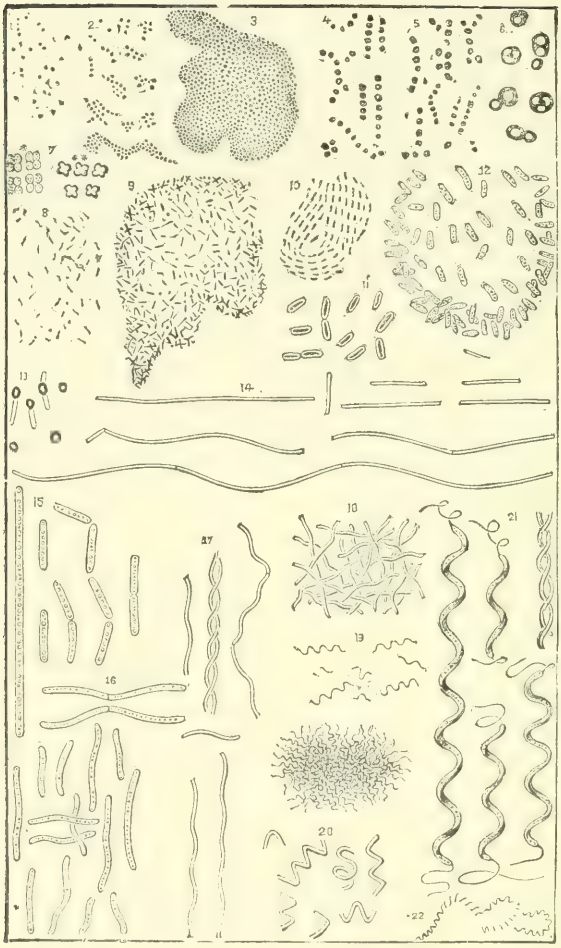


FIG. 1. Forms of bacteria. 1, 2, 4, and 5. Micrococci. 3. Zoöglœa stage of Micrococci. 7. Sarcina or packet forms of Micrococci resulting from successive divisions in different directions. 8, 9, and 10. Zoöglœa stages of Bacilli. 11 and 12. Forms of bacterium. 14. Leptothrix filaments. 15 and 16. Bacilli and Spirilla showing spores. 17. Vibriones. 18, 19, 20, and 22. Spirilla. 23. Zoöglœa stage of Spirilla. 21. Spirochætæ.

1. Mount a little of the *fur* from your teeth in a drop of water. Examine with high power and find Micrococci, Bacilli, and Spirilla. The comma-shaped forms resemble the *Comma bacillus* of cholera. Run iodine under the cover-glass and observe that the longer rods are made up of segments. They are Leptothrix forms. Represent in a drawing all the forms found.

2. Steep some hay in water. Filter the solution into two flasks and boil for twenty minutes, supplying the loss by evaporation with water that has been boiled for the same time. Stop both flasks with cotton-wool plugs. After twenty-four hours repeat the boiling with the cotton-wool plugs in the flasks. After another twenty-four hours again repeat the boiling. Now set the flasks away for several days, allowing the cotton-wool plug to remain undisturbed in one; removing it from the other, so that this flask shall be open to the air.

Examine the flasks daily. Account for the fact that the liquid in the closed flask remains unchanged, while that in the open flask becomes turbid. Notice that a skin forms on the surface of the liquid in the open flask,—the *pellicle* or *zoöglœa* stage of bacteria.

Examine under the microscope daily some of the liquid from the open flask, using the high power. There will usually be found at first a short rod form with rounded ends and a constriction at the middle,—*Bacterium termo*. Later the longer rods and Leptothrix filaments of *Bacillus subtilis* will be abundant. Other forms are also likely to be present.

Examine also a bit of the pellicle. Observe that the bacteria are motionless and that they are imbedded in a transparent, gelatine-like mass which results from the secretions thrown off from the bacteria.

3. Allow a piece of fish to stand in a vessel of water for some days. Examine from time to time for bacteria. The succession of forms that will appear will afford good material for instructive study. Among other forms, numerous motile spiral forms will be found,—Spirilla and Spirochaetæ. Draw some of the larger forms.

4 In a similar way study the bacteria that will surely be found in any other putrefying substances.

Group II. **The Schizophyceæ.**—There are three classes in this group,—the *Cyanophyceæ*, the *Diatomaceæ*, and the *Protococcoideæ*.

The Cyanophyceæ or Green-slimes.—The plants of this class contain, in addition to chlorophyl, a blue coloring matter, *phycocyanine*. The two colors combined give the plants a bluish tinge.

The protoplasm has scattered through it granules that are supposed to partake of the nature of nuclei, though no true nuclei are found. The plants of this class occur in greater or less abundance in the gatherings from stagnant pools and ditches and in masses on moist rocks. There are several orders in the Cyanophyceæ. The most important are :

The **Chroöcoccaceæ,** in which the cells are enveloped in a transparent gelatinous covering. The cells are found singly or associated in different small groups which result from the repeated division of single cells. Groups of three are common. These plants occur as slimy growths in damp places and in stagnant water, usually associated with other kinds of plants. The two most common forms are *Chroöcoccus* and *Gloeocapsa*. These are very simple organisms. They are distinguished from other organisms by the uniformity in the distribution of the minute blue green granules through the protoplasm and by their gelatinous envelopes. In Gloeocapsa the envelope has two distinct layers, which in the older forms are quite dark,

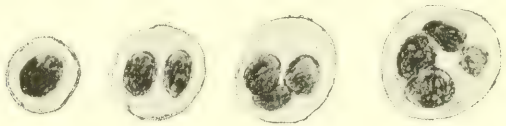


Fig. 2. Gloeocapsa, magnified. Original.

facts that serve to distinguish it from Chroöcoccus. The cells divide by partitions running in all directions through the parent cell and thus give rise to groups of cells.

The **Nostocaceæ,** in which the union of the cells to form filaments distinguishes from other plants containing the blue-green coloring matter characteristic of this class. The filaments in some of the species are more or less coiled in gelatinous envelopes. The cells of the filaments are not uniform throughout, but there occur at intervals larger cells that receive the name *heterocysts.* There are three modes of reproduction. First, by division of the cells in a direction transverse to the length of the filament. Second, by the formation of spores that develop into new filaments. Third, in a special way by the formation of what are called *hormogonia.* The parts of the filaments between the heterocysts escape from the gelatinous covering after it has become more or less decayed and dissolved. After a time each of these fragments becomes invested with a new gelatinous covering and develops into a new filament by the division of its cells.

The **Rivulariæ** are found as minute masses of dark blue-green color in sluggish streams and in standing water. The filaments radiate from the centre of the mass. The masses are seldom more than one or two millimeters in diameter.

The **Oscillatoriæ** occur as a dark blue green scum on the surface of stagnant water, about watering troughs, on wet rocks,



FIG. 3. Oscillaria, magnified. Original.

and in similar locations. Examined under the microscope, the filaments are seen to oscillate slowly from side to side, a phenomenon that has not as yet been satisfactorily explained.

OSCILLATORIÆ.—PRACTICAL STUDIES.

1. Collect a considerable quantity of the dark blue-green plants from any of the above mentioned locations, dry and pulverize it, and place it in a clear glass dish with some water for several hours. The water dissolves the coloring matter known as phycocyanine and becomes bluish. Remove the water and

add alcohol. After some hours the alcohol becomes yellowish-green by dissolving out the chlorophyl.

2. Under a high power study the oscillations of the filaments mounted in water, using fresh material.

3. Study the cells of a filament. Note the finely granular protoplasm and its uniform distribution in the cell. Compare a branch of Nostoc, noting the sizes of the cells and the positions of the heterocysts or enlarged cells in the Nostoc. Find short filaments of Nostoc that have broken off at the heterocysts to form hormogonia. Such filaments are frequently found in stagnant water. Draw part of a filament of Oscillaria and one of Nostoc, showing the characteristic structures.

4. Observe the gelatinous sheath enclosing the filament. This is much more distinct in some species than in others. In some species it is wholly wanting. In difficult cases it is best seen at the broken ends of filaments.

5. Notice the turgidity of the cells, *i. e.*, their swollen appearance, due to the fact that the internal pressure of the water that has been absorbed by the protoplasm is greater than the external pressure. This is best observed at the broken ends of filaments where the cell-wall is bulged out by the internal pressure.

The Diatomaceæ.—Not less than 10,000 species of diatoms have been described. They occur in water, both still and running, salt and fresh, growing on the leaves and stems of aquatic plants, or attached to sticks and stones, or mingling with the mud at the bottom. They are brown in color, because of the coloring matter called *diatomin*, and are sometimes classed with the Phœophyceæ for this reason. Their exact position in the classification of plants is not easily determined.

The diatoms occur as isolated cells or connected in filaments. The filaments sometime partly separate, leaving the cells strung together by their corners, forming striking and characteristic patterns. Some forms grow on gelatine-like stems. Diatoms vary in size from forms that require a high power of the microscope to distinguish them to forms that are plainly visible under the one-inch objective. None are large enough to be seen with the unaided eye. Some diatoms resemble in shape certain desmids, but the brownish color of the diatoms distinguishes

them at once from the bright green desmids. Many species of the diatoms are capable of independent movement from place to place. The manner in which the movements are accomplished is not well understood. One theory is that the motions are caused by currents of water, which pass through small openings in the organism, or perhaps by osmosis through the thin partitions of the cells. Another theory ascribes them to the contractions of the protoplasm which protrudes through minute openings in the cell-wall.

The diatoms are one-celled plants. In the filamentous forms the cells are simply associated together, but are without organic connection. This same association of filaments of unicellular

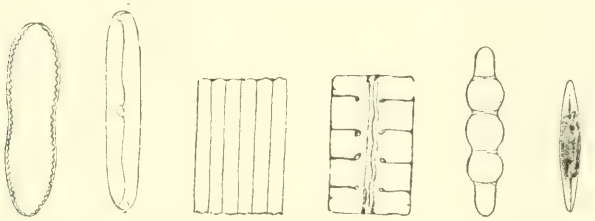


FIG. 4. Some forms of Diatoms, magnified. Original.

organisms has already been noticed in the case of filamentous forms of bacteria. It will also be strikingly seen in the Zygnemaceæ and in the desmids.

The individual cells are commonly spoken of as frustules. The structure of these frustules is highly characteristic. The foundation of the frustules is composed of silica which has been deposited from the water in countless numbers of exquisitely delicate and interesting patterns. Each frustule is made up of two valves, one of which overlaps the other like the cover of a box. The junction of the two valves is called the *girdle*. The frustules are covered with a gelatinous envelope enclosing granules bearing chlorophyl and others bearing the brown pigment that gives the prevailing color to the organisms. If gatherings of diatoms be treated with boiling nitric acid, or sulphuric acid and potassium bichromate, the living portions will be entirely removed, and the silicious shells will be left uninjured. These

shells as well as the living diatoms have been objects of great interest to microscopists at all times on account of the great variety of beautiful markings. The more delicate forms are also highly esteemed as test objects for microscope objectives. Besides the living forms there are numerous deposits of the silicious shells of diatoms in various parts of the world. The accumulation of sediment formed by their successive production and death in the waters of oceans, lakes, and rivers, gives rise to deposits that may attain considerable thickness, and which, by subsequent changes of level, may come to form parts of the dry land.

Certain deposits in Norway and Sweden are known as Bergmehl (mountain meal). They are used by the peasants to mix with the flour in making bread. Fossil diatoms are sold under various names for polishing powders, for which purpose they are excellent, and are extensively used.

Diatoms may be obtained for examination from these deposits or the living forms may be secured by stripping the yellowish-brown coating from the stems of water-plants, or by gathering the thin film of black mud from the bottom of springs, ponds, and streams.

Diatoms are reproduced both sexually and asexually. By the asexual process the cell divides lengthwise by the separation of its two valves. Each of the valves develops a new valve to mate itself, and after a time the two new cells separate entirely. The new valve always develops on the inside of its mate, and is therefore smaller. If this diminution were to continue indefinitely, the diatoms would, of course, wholly disappear in time.

The sexual process of reproduction is evidently designed to prevent this disaster. By this process zoöspores are formed. These zoöspores unite in pairs, and the resulting zygospore develops into a large form. This new form is, however, usually different from the parent form. By the sexual process of reproduction nature not only prevents the extinction of the diatoms, but provides for the production of countless numbers of new species. A third process of reproduction has been described by a few recent observers. By this process spores

are produced in the frustules which develop by the asexual process.

The Protococcoideæ.—There are two orders and several species in this class. Here are placed all the primordial plants which are of a pure green color. They are distinguished at once from the Cyanophyceæ by the lack of the blue tinge in their green, and from the diatoms by the lack of the brown color. The line between these plants and the Algæ is not a sharp one; it is believed that the higher green plants have been evolved from these or similar forms.

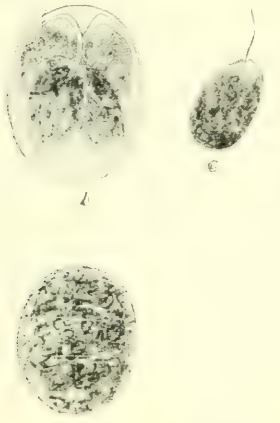


FIG. 5. Protococcus: *a*, normal cell; *b*, dividing cell; *c*, zoöspore, magnified. Original.

Among the most common plants of this class are the different forms of *Protococcus*. The commonest of of these is *Protococcus viridis*. *Protococcus pluvialis* is a form containing enough of a red pigment to give a decided red spot to each cell; it is found in stagnant rain water. *Protococcus nivalis*, or red snow, is the interesting plant that sometimes coats the snow with red in a single night in the higher latitudes and on the mountains.

Other common forms are *Chlorococcus*, occurring in small aggregations of cells, each of which is surrounded by a comparatively thick envelope of a gelatinous nature; *Raphidium*, occurring as long, slightly curved cells pointed at each end, either singly or in small groups with the cells crossing one another at their middle portions: *Scenedesmus*, occurring as crescent-shaped cells, usually in groups of four not crossing one another. While not as abundant as Protococcus, these plants are frequently found in gatherings from still water.

THE PROTOCOCCACEAE.—PRACTICAL STUDIES.

Protococcus viridis is abundant on the north side of old unpainted buildings and fences and on trees, forming a very

noticeable green incrustation ; it is especially distinct in wet weather. It may be obtained for study at any season of the year.

1. Place a quantity of Protococcus in alcohol for several hours and observe the yellowish green color imparted to the alcohol by the chlorophyl. Mount some of the cells so treated and observe that the color has been entirely removed.

2. Mount a little freshly gathered Protococcus in water. Notice that while many cells occur singly, others occur in variously arranged groups. The positions of the cells in groups show that the organism is reproduced by cell division. Observe a reddish spot or tint in many of the cells. Haematococcus, a form of Protococccus found in stagnant rain water, receives its name from the abundance of this red pigment. The chlorophyl is collected in masses scattered through the cells,—the chlorophyl-bodies or chromatophores. Draw a single cell and a group of cells, showing the minute structure.

3. Run a little iodine solution under the cover-glass ; the cell contents take a yellowish-brown color, showing that protoplasm is present. A nucleus containing a nucleolus can be seen in each cell unless the iodine solution is too strong and gives too intense a coloration. The cell-wall is unaffected by the iodine. Draw and compare with drawing under number 2.

4. Run sulphuric acid into the preparation that was stained with iodine in number 3. The cell-wall turns blue. It is, therefore, composed of cellulose such as is found in ordinary plants.

5. Place pieces of bark bearing Protococcus in a glass of water, expose to the sunlight for a day or two, and examine scrapings from the bark under a high power. The mount will be found to be swarming with rapidly moving organisms. These are the *zoöspores* or motile forms of Protococcus. Large forms, megazoöspores, and small ones, microzoöspores, will be present. It is hard to persuade one's self that they are not animals. The motion is produced by the rapid lashing of the water by two flagella which extend from the anterior end of the body of the organism. These can be seen under *high* power on motile forms that have come to rest. It is much

easier to see them in stained preparations. Run a minute drop of iodine solution under the cover-glass and watch its approach to the moving organisms. As the organism dies the flagella come into distinct view. The flagella are believed to be projections of the protoplasm, and their movements are produced by the alternate constrictions of the protoplasm on their opposite sides. Draw a cell showing flagella. The rapid movements of the motile forms and the fact that some species have contractile vacuoles—a characteristic of the lowest forms of animals—have led to doubts as to the classification of Protococcus. Some eminent scientists class it as a plant; others as an animal. As already noted, the possession of flagella indicates close relationship with the Coenobieæ, the lowest of the Algæ. It is known that after a time the motile forms come to rest, draw in their flagella, and become invested with a thick cell-wall. They are now resting spores.

6. Find large encysted cells of Protococcus in which the cell contents are broken up into separate parts. The megazoöspores are produced by the division of the cell contents into four parts; the microzoöspores by the division of cell contents into eight parts.

II

THE MYCETOZOA

The *Mycetozoa*, or slime moulds, are mere masses of unorganized protoplasm without definite shape. In appearance they resemble some of the protozoa so much that it is very difficult to distinguish them from the lowest forms of animal life. Their manner of living does not help to decide the question, for their nutrition is neither entirely holophytic nor holozoic, that is to say, neither entirely after the manner of plants, nor entirely after the manner of animals. They live in part by the absorption of solutions of decaying organic matter, *i. e.*, after the manner of saprophytic plants; in part, by the digestion of particles of solid matter that they have enclosed after the manner of the amoeba, the lowest of animals. So much do these organisms partake of the nature of both plants and animals that they are classed as plants by some eminent scientists and as animals by others equally as well qualified to judge, while still others evade the question by making a third kingdom, that of the *Protista*, in which these and other doubtful forms are placed.

The Mycetozoa are divided into two classes, the *Acrasieae* and the *Myxomycetes*. The division is based upon their modes of motion, the nature of their spores, and on the formation or non-formation of *plasmodes*, which result from the coalescence of two or more organisms into one. The *Acrasieae* move only by movements similar to those made by the Amœba; the Myxomycetes, in addition to amœboid movements, exhibit a combined hopping and rotating motion and a creeping motion. The Mycetozoa are jelly-like masses. They vary in size from forms that must be studied with the microscope up to forms several inches in diameter, as in the large sulphur-colored forms known as "*flowers of tan*," the *Aethalium septicum*.

The Myxomycetes are to be looked for in the water, on the bark of trees, tan-bark, decaying leaves or wood, and in similar locations. Piles of tan-bark afford especially good ground to search for them. They appear suddenly when the conditions

of heat and moisture are favorable, and run through their course of life within the space of a few days. If the conditions are changed, they disappear.

In their earlier stages these slime-molds form continuous, or nearly continuous, masses of protoplasm, without cell-walls, without fixed shape, and without green color. They are either colorless, or of a yellow, sulphur color, sometimes tinged with red. In the later stages of their growth rounded masses appear in the protoplasm, each of which develops a cell-wall and becomes a resting-spore. The resting-spores live after the moisture has evaporated, and in the form of a dry powder are scattered abroad by the wind until they strike some moist surface where the conditions are favorable for their development, when each spore is capable of growing into a new organism.

III

THE FUNGI

The Fungi include a very large number of chlorophyl-less saprophytic or parasitic plants. Reference to our first tabular view will show that, by that classification, they are distributed among the first four branches, the classification considering especially the character of the sexual organs. The most striking characteristic of these plants is the absence of chlorophyl; this fact alone, however, does not determine their separation into a subdivision by themselves. That separation is based rather upon morphological characteristics. The plant-body is a *thallus* that develops by apical growth into *hyphæ*, which either may or may not be separated. A few forms that do not develop by apical growth, such as the yeast-plants, for example, are classed as Fungi on account of resemblances in other particulars, seeming to be more nearly related to these than to any other plants. There are two groups of the Fungi.

Group I. The Sporocarpeæ.

Group II. The Phycomycetes.

Group I. **The Sporocarpeæ.**—In this group there are three classes, the *Basidiomycetes*, the *Uredineae*, and the *Ascomycetes*.

The Basidiomycetes (*The Toadstools and their Allies*).—This is a large class and contains a great variety of forms, including some of the largest and handsomest of the Fungi. They are for the most part saprophytes; a few are parasites. No sexual organs are known to exist. The asexual spores are borne usually in twos or fours on *basidia*, which are large cells projecting from a surface called a *hymenium*. In the puff-balls the spores are produced internally; in the toadstools they grow on the *gills* or *lamellæ*, situated on the under side of the *pileus*, or umbrella-shaped top.

The toadstools include the edible mushrooms.

TOADSTOOLS—PRACTICAL STUDIES.

1. Obtain a number of different kinds of toadstools. Compare them as to height of the stipe or supporting stalk, and the shape, diameter, and color of the *pileus* or umbrella-shaped top. Notice the *annulus*, a ring on the stipe a short distance below the pileus; this is a remnant of the *velum* or veil which, when the plant was young, was continuous with the membrane covering the top of the pileus. Notice that the edge of the membrane on the circumference of the pileus is somewhat ragged, due to the fact that it was torn away from the annulus. Describe the arrangement of the lamellæ or gills. Are they continuous with the stipe? Draw the entire toadstool in two positions; in one, showing the top of the pileus; in the other, showing the gills. Look for toadstools growing in the woods. Dig up some with considerable earth clinging to the bases. Carefully pick this away and notice the threadlike root portions. Examine some of these roots under the microscope and compare with the observation under number 2.

2. Make longitudinal sections of the stipe. For this purpose the material must be hardened by treating pieces not more than half an inch square and quarter of an inch thick with chromic acid for about twenty-four hours; wash out the acid in water and keep the specimens a day successively in fifty, seventy-five, and ninety-five per cent. alcohol. Hold the specimen between two pieces of pith when cutting sections. Examine the sections in dilute glycerine under both low and high powers, and determine that they are made up of interwoven filaments or hyphæ. Treat a section with Schultze's solution, which stains normal cellulose blue or violet, and fungus cellulose brown. Is it composed of normal or fungus cellulose?

3. Make sections of the pileus so as to obtain transverse vertical sections of the lamellæ. A toadstool just ready to open should be used. Examine a lamella under high power. The central portion is the *trama*; compare its structure with the structure of the stipe. Outside of the trama are the *sub-hymenium* and the *hymenium*. Projecting from the hymenium are the *basidia*, large cells having pointed extensions on the outer

ends. In some cases the *spores* will be found still attached to these points; in other cases they will have fallen off. What is the shape of the spores? Between the basidia notice the projecting cells with round ends; these are paraphyses. Draw a portion of the lamella, showing all the parts seen.

The Uredineæ (*the Rusts*).—The rusts are parasites which

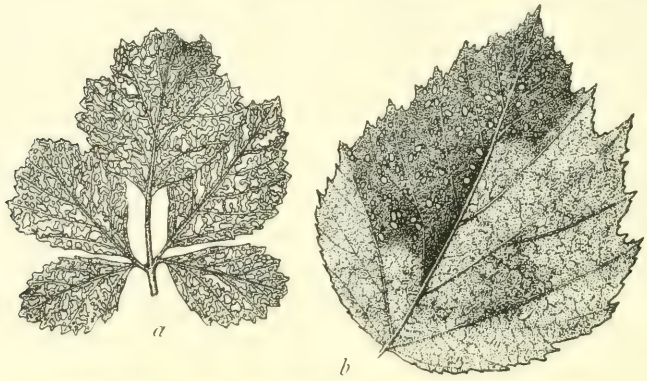


FIG. 6. Orange Rust: *a*, Under surface of blackberry leaf, showing spots of æcidium stage; *b*, same of raspberry leaf, showing both æcidium and Puccinia spots.

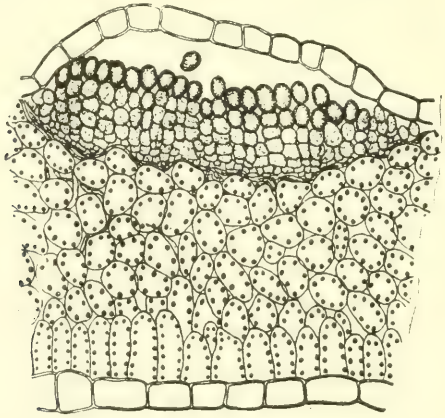


FIG. 7. Section of blackberry leaf, showing development of orange rust spores. Magnified.

infest the tissues of higher land plants. They sometimes grow in the intercellular spaces, and perhaps do no injury to their

host. In other cases they grow in the cellular tissues, often causing great deformity and injury. The spores are produced beneath the epidermis of the host. They are somewhat of the color of iron rust, and so give the common name to the plant. Many species of rusts produce different kinds of spores, but not on the same plant. There is a succession in their development which requires plants of different kinds. A familiar example of this is the rust that causes disease in wheat. It is known as *Puccinia graminis*. It has different kinds of spores. One kind grows on the wheat; the other kind on barberry bushes. In the spring cup-like yellow clusters develop on



FIG. 8. Clover Rust: *a*, White clover leaf, showing æcidium stage; *b*, red clover leaf, showing uredo stages.

the barberry leaves, producing spores. These spores are carried by the wind to wheat fields, where they grow and produce an entirely different kind of spore. These new spores are carried to other wheat plants and develop. This continues as long as the conditions of warmth and moisture are favorable. Late in autumn spores with thick coats are produced. These rest through the winter, and in the spring develop in the decaying straw and produce still a different spore, called a *teleutospore*. This spore cannot develop on the wheat, but can grow on barberry leaves.

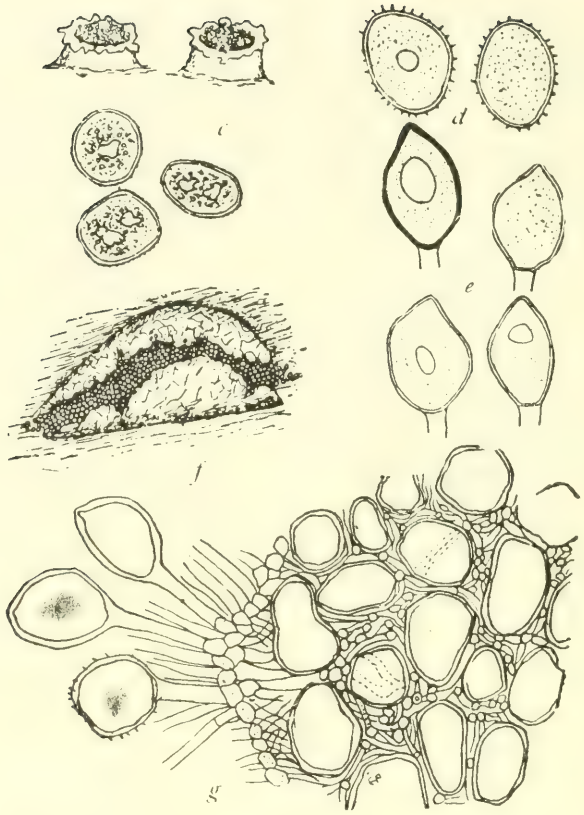


FIG. 9. Clover Rust: *c*, Cluster-cups and æcidium spores; *d*, uredo spores; *f*, uredo pustule on clover leaf; *e*, teleuto spores; *g*, cross-section of stem showing mycelium between cells; also two teleuto spores and one uredo spore.

Another species of rust, *Puccinia rubigo-vera*, affects wheat in the United States. This has no connection with the barberry, but its different stages are passed on the wheat and on plants of the Borage family.

The abnormal growth on the twigs of cedar, known as *cedar-apples*, affords opportunity for the study of another interesting rust. These cedar-apples, if examined in autumn or winter, are seen to be covered with elevations under the bark. They are now in good condition for study. Thin sections show the spores

in their sacs. The bark over the elevations breaks away in the spring and the rust-colored spores appear on the surface. These spores are the teleuto-spores. They will not grow on the cedar, but if, borne by the wind, they fall on the leaves of the apple or hawthorne, they grow and produce another kind of spore, the kind that flourishes on cedar.

The shape of the teleuto-spores determines the classification of the rusts; in all other stages the different kinds of rusts

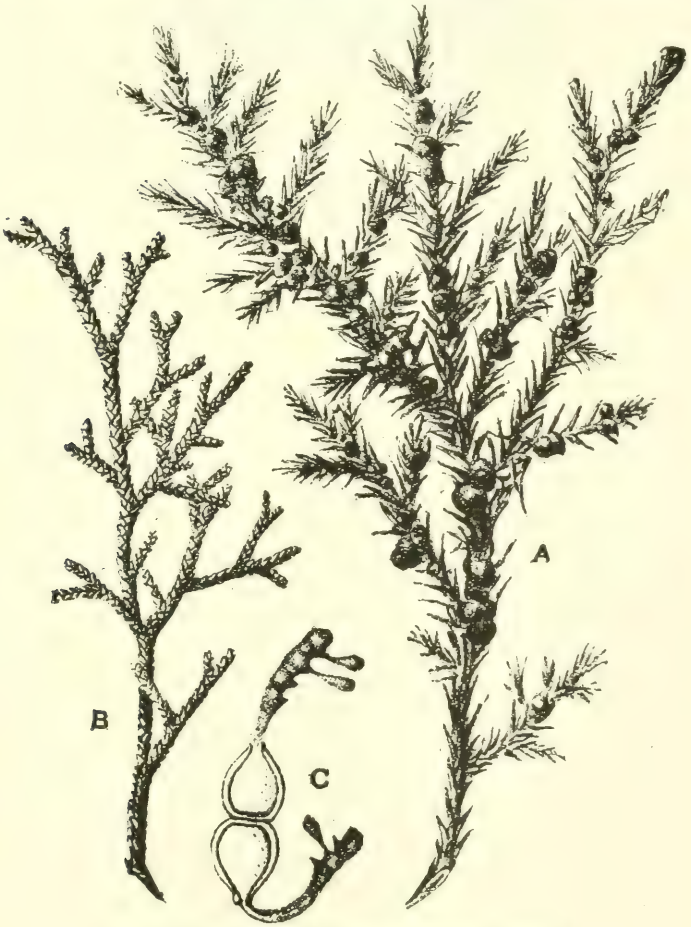


FIG. 10. Cedar-apples (*Gymnosporangium clavipes*).

resemble one another so much that they cannot be distinguished.

No sexual reproduction is known, though it is supposed that it does exist.

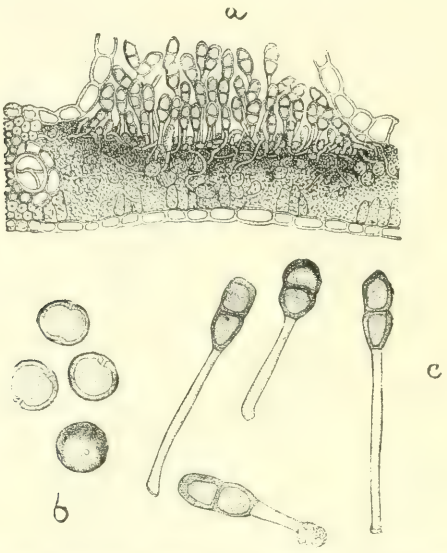


FIG. 11. Corn Rust, *Puccinia maidis*: *a*, Section of leaf showing teleuto-spores; *b*, uredo spores; *c*, teleuto-spores. Magnified.

The Ascomycetes. (*the Sac-fungi*).—The distinguishing feature of this class is the formation of spores in sacs or *asci*. These sacs are club-shaped or globular. The class is a large one and includes many common plants, which grow as parasites on living plants or as saprophytes on decaying plants. Besides the characteristic reproduction by ascospores, many of these plants bear ordinary spores in conidiophores that are raised on stalks. There are thirteen orders of undoubted Ascomycetes and three orders of plants that are doubtfully placed here. Among the more common plants of the class are the blights that grow on the Lilac (*Microsphaera friesii*), on Hops (*Podosphaera castagnei*), on the Cherry and Apple (*Podosphæra tridactyla*), on the Willow (*Uncinula adunca*), on Peas (*Erysiphe martii*), on Grasses (*Erysiphe graminis*), on Buttercups (*Ery-*

siphe communis), on Celery, (*Cercospora apii*). Other members of the class are the common moulds,—the herbarium moulds (*Eurotium*), the blue moulds (*Penicillium*). The **Truffles** are interesting members of the class. They are natives of Europe,



FIG. 12. Celery leaf, showing blight.

in some parts of which they are cultivated for the market: they occur to some extent in America. The spore fruits are produced beneath the ground. They are very large, being sometimes six inches in diameter. These are the edible parts, and they are highly prized as an article of food. One of the three doubtful orders includes ordinary yeast (*Saccharomyces* or *Torula cerevisiae*) and other related yeasts. Here also belong certain Lichen-forming fungi.

The **Lichens**—often popularly mistaken for mosses—grow everywhere on stones, trees, fences, and the ground. They are for the most part sac-fungi. Until within recent years they were thought to be independent plants, but they are now known to be parasites of a very peculiar kind. The plants upon which

they grow belong to the lowest orders of the green plants, such as Protococcus, Chroöcoccus, Glœocapsa, and Nostoc. The fungi grow in such a way that they entirely envelop the host-plant, which seems to gain a decided advantage from the association, so that it often grows in places where it could not possibly exist without the protection and moisture afforded by the enveloping fungus.

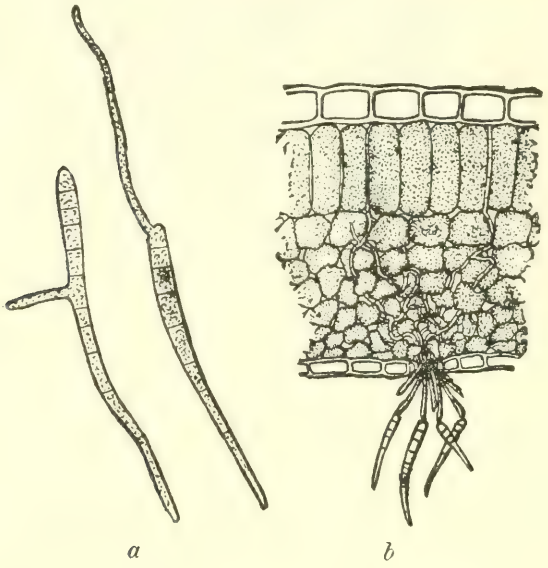


FIG. 13. Celery Leaf-Spot: *a*, spores germinating; *b*, section of leaf showing fungus. Magnified.

The thallus of the Lichen, as the flattish expansion is called, sometimes clings closely to the supporting surface. Such Lichens are called *crustaceous*. Sometimes the thallus is flat, but has curled or crisped edges. Such Lichens are called *foliaceous*. Sometimes the Lichens are attached to the supporting surface by a very small area and rise from it with branching tree-like forms. Such Lichens are called *fruticose*.

The sexual reproduction is known to exist in Lichens,—at least in some species,—but is as yet imperfectly understood.

By the asexual method of reproduction, spores are produced in sacs. These sacs are sometimes wholly enclosed in the tissues of the Lichen; sometimes they are grouped in circular masses



FIG. 14. Branches of young plum tree affected by black knot.

that show conspicuously as discs on the surface of the thallus. They are to be studied by making sections through these discs.

Other important plants of this class are the **Black-Fungi.** Familiar examples of these are the black-knots common on

Cherry and Plum trees. These plants produce filaments which lie dormant under the bark until the spring of the following year, when they develop rapidly, producing a disease of the branch on which they grow by causing an abnormal development of the bark. The conidia formed by the asexual process may be studied on the surface edge of thin sections of the knot made in the late spring; the ascospores of the sexual process may be studied in thin sections cut in the winter. The spores may then be seen in their sacs, and by the sides of the sacs slender filaments, the so called *paraphyses*.

There are many species of black fungi. The black spots that develop on the leaves and bark of different kinds of trees, and *ergot*, a parasite on heads of rye and other grains, are among them.

The Saccharomyces, or Yeast Plants, are by some authorities classed with the bacteria. Their proper place in the scheme of classification has not been determined. The formation of ascospores under certain conditions of existence and their resemblance in other respects to the Ascomycetes are strong reasons for placing them in this class.

The yeast cell is ovoidal in shape. It consists of a very delicate transparent wall of cellulose enclosing protoplasm. More or less distinct non-contractile vacuoles may be seen. The vacuoles are simply spaces in the interior of the cell not filled by the protoplasm. They are, of course, filled with fluid. In some cells highly refractive particles of fat and other granules, which are the result of the nutritive processes of metabolism, are found. The nucleus can be seen only after the use of special staining processes which have been discovered recently.

YEAST—PRACTICAL STUDIES.

Dissolve a yeast-cake in water to which some sugar has been added, or better in Pasteur's solution. After it has been growing for some hours, place a drop of the fluid on a glass slip and cover lightly with a cover-glass. Examine with high power.

1. Observe the prevailing ovoidal shape of the highly transparent cells, being careful not to confound starch granules that

may be present with the yeast cells. If the yeast is in an actively growing condition, the characteristic mode of reproduction by *budding* will be seen. Budding is a modification of cell division in which one of the newly formed parts is smaller than the other. The small bud rapidly grows to the full size of the mother cell and separates from it. The plant is, therefore, unicellular, though retardation in the separation of the daughter cells, due to the fact that the outer coating of the cell-wall is mucilaginous, frequently gives rise to chains or groups of cells. Draw a single cell and groups of cells showing buds.

2. Sow thin layers of yeast that is in the active budding condition on slabs of plaster of Paris or on freshly cut surfaces of potato or turnip. Keep under bell-jars, adding distilled water to the containing dish from time to time to prevent the yeast from drying up. It is best to prepare a number of these cultivations, as bacterial and fungoid growths are likely to interfere. Examine mounts of the yeast from the surface daily, after about a week, until the contents of some of the cells are seen to have undergone division into two or four parts. The yeast cells are starved, the vacuoles become larger and more numerous, and as a last effort to preserve life the protoplasm divides into what are virtually resting-spores. These divided cell-contents indicate another method of reproduction. They are known as *ascospores* or sac-spores. They are called sac-spores because they are contained within the wall of the mother cell as in a sac. Draw a typical cell.

3. Make a mount of actively growing yeast. Observe the vacuoles—clear spaces empty of protoplasm—in the central part of many of the cells. Between the vacuoles and the surfaces of the cells observe the protoplasm, which is quite clear in many of the cells; in others, it presents a granular appearance, due to the presence of minute particles of oil and granules of proteinaceous matter.

4. Study the cell-wall. Press firmly on the cover-glass, and thus burst some of the cells. Observe the colorless cell-walls left empty of their contents. Run a drop of magenta under the cover-glass. The cell-wall is not stained by this dye, but the cell contents take a pinkish tinge.

Prepare another mount of the yeast, burst some of the cells, and run iodine solution under the cover-glass. The cell-wall is rendered more distinct, the protoplasm is slightly colored, but none of the particles are stained blue. Starch is therefore not present; consequently chlorophyl is absent. These reactions are all more distinct, if, instead of using a fresh preparation, a thin layer of the yeast is allowed to dry on the cover-glass. A drop of water is then placed on it, the cover-glass is put in position on a glass slip, and the iodine is applied.

Make another dry preparation on a cover-glass, treat with 70 per cent. sulphuric acid for a few minutes, wash out the acid with water, stain with dilute iodine solution, and mount. The cell-wall will be beautifully distinct in some of the cells because of the shrinking of the protoplasm.

The cell-contents may also be made to shrink by mounting some fresh yeast and running a drop of a 10 per cent. solution of common salt in water under the cover-glass. The shrinking of the cell-contents is due to the fact that the solution used passes freely through the cell-wall itself, but does not pass through the membrane—the *primordial utricle*—of the protoplasm. This treatment is called *plasmolyzing* the cell.

5. Prepare a dry layer of yeast on a slide and stain it with Schultze's solution. This treatment stains the cell-walls of higher plants blue or violet, but gives a yellowish-brown color to the cell-walls of the Fungi. The material of the cell-wall is in this case *fungus cellulose*. That fungus cellulose is closely related to ordinary cellulose is proved by the fact that, after it has been treated with dilute caustic potash for a long time, it gives the usual blue or violet reaction with Schultze's solution.

6. Examine for the nucleus. Prepare a dry layer of yeast on a cover-glass; fix the cell-contents by allowing the cover-glass to remain in a strong solution of picric acid for twenty-four hours. Wash thoroughly in water to remove the picric acid, and stain in ammonia hæmatoxylin, which may be prepared by shaking some of the hæmatoxylin crystals in distilled water to which a minute drop of aqua ammonia has been added. Allow this stain to act for several hours, but do not let it dry on the cover-glass. Wash thoroughly in water and mount. The nucleus

will now be seen in the centre of the cells as a small, round mass more deeply stained than the rest of the cell.

PENICILLIUM—PRACTICAL STUDIES.

Penicillium glaucum is one of the most common moulds. It is found on a large variety of substances that are exposed to the air as a blue or green mould. It may be raised for study by sowing its spores on Pasteur's solution or on a decoction of hay, such as was used in studying bacteria. In fact, either of these solutions, left exposed to the air, will generally bear the mould after a few days. It first appears as minute tufts of cotton-like filaments. These tufts enlarge in diameter and grow thicker in the centre. The inner portions gradually change to blue, and finally to sage-green, so that a well-developed spot has a green centre, surrounded by a ring of blue, and a second peripheral ring of white.

Penicillium glaucum resembles *Eurotium* somewhat in its structure, but is readily distinguished from it by its smaller size, by the color, and by the fan-like arrangement of the spores in the heads. The formation of spore-fruits is known to occur, but their study is difficult for beginners.

1. Cultivate some Penicillium on Pasteur's solution, or hay decoction. Carefully transfer one of the smallest spots to a glass slip, keeping it right side up. Do not use a cover-glass. Examine with the lowest power. Notice the mycelium, composed of intersecting filaments, the aerial hyphæ rising erect into the air, and the submerged hyphæ descending into the nutrient solution.

2. With the forceps tear away some of the white filaments of the outer ring. Mount them in 30 per cent. alcohol, and examine under high power. What is the shape of the distal end? Do these white filaments bear conidia? Are there septa across the filaments? Treat with Schultze's solution. Are the cell-walls composed of ordinary or of fungus cellulose?

3. Mount some of the filaments taken from the blue ring in 30 per cent. alcohol. Compare the distal ends of these with those from the white ring. Do these bear conidia? Make

another mount from the central green portion. State how the distal ends of these compare with the distal ends of filaments from the blue and white rings. Compare the septa in the three mounts. Is Penicillium a unicellular or multicellular plant?

4. Examine the conidia. Show by a drawing the arrangement of the spores. To the naked eye the spores in mass appear blue or green. Can you distinguish either of these colors under the microscope? The color is not due to chlorophyl. No chromatophores can be distinguished. Mount some spores in alcohol, stain with hæmatoxylin, and try to make out a nucleus. Treat another mount of the spores with Schultze's solution, and describe the effects on the cell-wall, nucleus, and cell contents. Treat another mount with caustic potash and describe the effects.

5. Make hanging-drop cultures of the spores. Cement rings of gutta percha or metal to glass slips to serve as culture chambers. Smear the tops of the rings with vaseline. Now place drops of Pasteur's solution, or of the rich juice made by stewing apricots in water and sugar, on the centres of cover-glasses. Sow spores of Penicillium in these drops. Invert the cover-glasses carefully over the rings and press them down into the vaseline, thus forming air-tight moist chambers. Set aside in warm places and examine from day to day to watch the development of the spores. Make drawings showing the development at successive stages.

6. Mount a little of the mycelium in 30 per cent. alcohol, tearing it apart with needles. Notice the granular protoplasm. Do you find vacuoles? Treat with Schultze's solution. Of what kind of cellulose is the cell-wall composed? Mount some more of the mycelium in alcohol, stain with hæmatoxylin, and make out the nuclei. Show by a figure the manner in which the mycelium branches. Are the branches of uniform diameter? If not, state what differences you notice; examine the ends of the hyphæ particularly. Treat another mount with one per cent. solution of osmic acid. A brown coloration shows the presence of oil. This oil is one of the products of the destructive metabolism of the protoplasm.

EUROTIUM—PRACTICAL STUDIES.

Eurotium first appears as a white, cotton-like growth; later yellow spots develop. It develops so readily on poorly dried plant specimens that it receives the name Herbarium Mould. It is also found on old leather, boot blacking, and various other substances.

1. Mount a little Eurotium in water and examine the mycelium under high power. Notice the septa. Draw a typical case of branching. Run Schultze's solution under the cover-glass. Is the cell-wall composed of normal or of fungus cellulose?

2. Study the asexual reproduction. Are the conidiophores branched or unbranched? Are they divided by septa? Describe the manner in which the conidia are borne. Draw a conidiophore to which a considerable number of conidia are still attached.

Make hanging-drop cultures of the spores. Make drawings on at least four different days showing the progress of the growth.

3. Study the sexual reproduction. Material for this study is to be obtained from Eurotium that has been growing for some time. It may be recognized as suitable by the yellow color distinctly visible to the naked eye. The fully developed yellow spore-fruit is spherical in shape and is sessile on a hypa. Draw a typical spore-fruit. By pressure on the cover-glass burst some of the spore-fruits and study the ascospores. Eight ascospores are borne in each sac. Find as many as possible of the stages in the development of the spore-fruit. The beginning of the development is by the outgrowth of a spirally coiled branch which becomes the ascogonium. From just beneath this, another branch,—the *pollinodium*,—rises, extending to the top of the ascogonium. It is supposed,—though this fact has not been proved,—that the pollinodium fertilizes the ascogonium. The ascogonium becomes enveloped in other branches which start from below its base and tightly enclose it. As the ascogonium matures, several sacs are developed in it, each containing eight ascospores.

Group II. **The Phycomycetes.**—There are two classes of the Phycomycetes,—the *Zygomycetes* and the *Oömycetes*.

The Zygomycetes.—There are five orders in this class. Among the most common plants are the smuts or bunts (*the Ustilagineæ*) and the black moulds (*the Mucorini*.)

The Smuts or Bunts are parasites on various flowering plants. They are especially common on the grasses, causing



Fig. 15. Wheat Bunts.

diseases which are sometimes very destructive to the cultivated grasses. The attack of the smuts is in most cases confined to some particular part of the plant, as the leaf, the stem, or the flower, on which they form spots that are brown or yellow during the early stages, but become black as the spores ripen. In some cases the growth of the smut begins in very young plants and spreads through all the different parts; but even in these cases the spore-fruits are formed in particular parts of the host.

The course of development of these fungi, so far as it is known, is believed to be as follows: The black resting-spore germinates into a *promycelium*, a minute plant of few cells.



FIG. 16. Oats Smut.

The promycelium bears male and female sporids; these unite and the zygospore thus formed develops into a mycelium; this mycelium produces another crop of the black resting spores.

The *Ustilago maidis*, the smut that attacks Indian corn, will serve as an example of these plants. It attacks the corn in different places,—the stem, leaf, tassel, and the ear. The diseased portions of the corn grow to an abnormal size and all the tissues within the epidermis gradually give place to the developing spores. These spores form in such quantity that the epidermis is finally broken through, and the black smut-like spores are scattered to the wind.

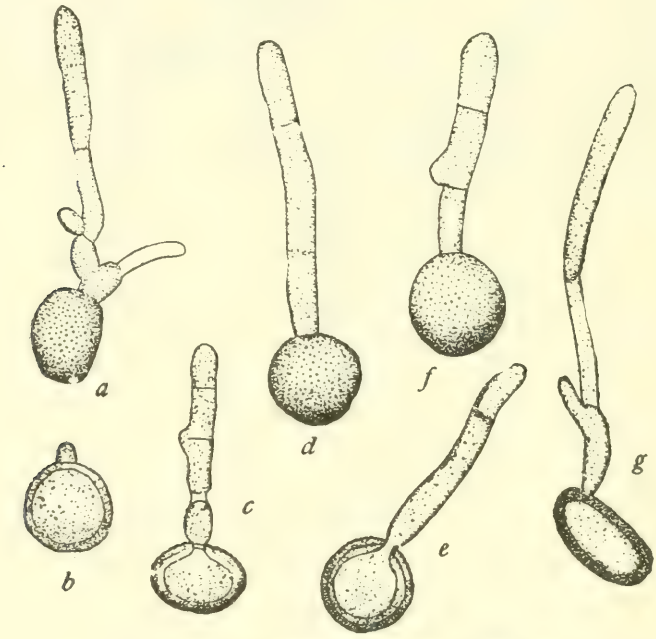


FIG. 17. Smut spores germinating. Magnified.

The **Mucorini** are among the commonest of the moulds. They are found in abundance on moist decaying organic matter. They are saprophytic in their nourishment. The plants grow from root-like filaments which interlace just above or just beneath the surface of the substance on which the mould grows. This interlacing rhizoid is called a *mycelium*. From it delicate stalks or hyphae rise tipped with spherical masses which are sporangia filled with spores. As the spores ripen

they become dark colored so that the mould which was in the earlier stages colorless or white turns black.

The reproduction is ordinarily asexual by the spores already mentioned. These spores dry up and are carried about in the air. They retain their vitality indefinitely. When they fall on decaying organic matter under suitable conditions of tempera-



FIG. 18. Part of smutted ear of corn.

ture and moisture, they develop at once by cell-multiplication into new plants.

There is also a sexual process of reproduction, but it is of much less frequent occurrence than the asexual process. Two hyphae, which must, of course, be of opposite sexes, send out projections to meet. These projections are then separated from the hyphae that produce them by the growth of a cellulose wall. The meeting ends of the projections break away, and the con-

tents of the two cells mingle in one. The resulting zygospore becomes encysted in a wall that is sometimes covered with curious protuberances. According to Strasburger, it is easy to raise the zygospores in moist chambers by sowing the asexual spores on thick plum juice mixed with 10 to 20 per cent. of ethyl alcohol. Zygospores are also said to be formed in the spring of the year on Mucor that grows on horse manure.

It is thought that the zygospore formed by some species does not develop. In the case of other species, it is known that, after a period of rest, the zygospore develops hyphae which bear sporangia, but does not develop a mycelium. The spores borne in these sporangia develop in the asexual way into new plants. These new plants multiply in the asexual way, and it is probable that it is only after a number of generations have been produced that the sexual process is repeated to reinvigorate the plant.

A third process of reproduction sometimes occurs. By this process asexual spores—*chlamydospores*—are formed in starved filaments of the mycelium.

The black moulds may be sought on decaying moist bread, on preserved fruits, and, in general, on decaying organic matter.

The moulds that develop on and in the bodies of certain insects, especially on flies and caterpillars, are closely related to the black moulds. The growth of these moulds constitutes a disease which kills the insect. The mould continues to grow after its death. It is frequently seen fastening its victim to the walls of a room or to a window pane. The disease is communicated from one insect to another by the spores that the mould produces. The spores are borne about in the air, and if one happens to fall on a moist portion of an insect, the disease results. It is said that in the West Indies it is not at all uncommon to see insects related to our wasp flying about with plants as large as the insects themselves, growing from some part of their bodies.

MUCOR—PRACTICAL STUDIES.

Keep a piece of wet bread in a moist chamber until a mouldy growth appears on its surface. Some of this growth will almost certainly be *Mucor stolonifer*. A similar cultivation on fresh horse-manure will produce *Mucor mucedo*. Mucor can be distinguished from other growths in part by the black color of its spores and in part by the fact that in young plants there are no septa except those which cut off the spherical spore-bearing knobs—the *sporangia*—from their hyphae. In older plants septa are sparingly formed, but are far less numerous than in other growths likely to be present.

1. Tear off a very little of the growth and mount in water. Examine the *mycelium* (the interlacing rhizoid portions) and the *hyphae* (the erect aerial stalks) for septa. Examine the *sporangia* which tip the hyphae. The cell-walls of the older sporangia are densely covered with crystals of calcium oxalate, which dissolve the instant they touch the water, setting the enclosed spores free, together with the mucilage which surrounds them in the sporangia. The young sporangia retain their spherical shapes.

2. Notice an ovoidal projection of the hypha into the sporangium. This is the *columella*. In some cases where the spores have been completely set free, a ring-like projection around the base of the columella may be seen. This is the collar.

3. Run iodine solution under the cover-glass. The protoplasmic cell-contents are slightly stained, the cell-wall is not affected, no blue color of the starch re-action is seen, but some spots of a brownish color show the presence of *glycogen*,—a substance closely related to starch.

4. Run Schultze's solution under the cover-glass of a fresh specimen and examine the cell-wall. Is it composed of ordinary cellulose or fungus-cellulose?

5. Make hanging-drop cultivations of the spores. If no mistake has been made in taking the spores, branching, unseptated filaments will soon begin to grow and will afford interesting material for study for some days. Draw a favorable specimen at successive stages of its development.

The Oomycetes.—In the Oömycetes there are four orders. Important orders are the Water-Moulds (*the Saprolegnieæ*) and the Mildews and White Rusts (*the Peronosporeæ*).

The **Water-Moulds** are saprophytic or parasitic plants that grow on the bodies of fishes in the water and in the case of a

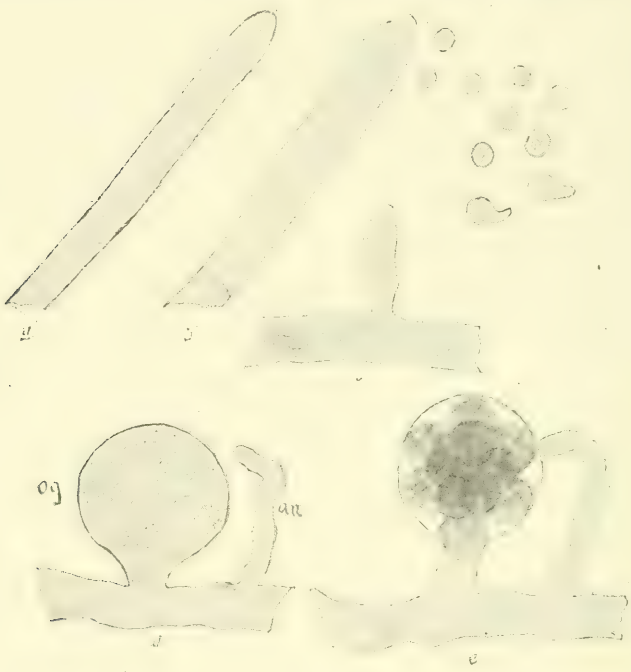


FIG. 19. Water mould: *a*, end of filament showing protoplasm; *b*, same, with protoplasm divided into escaping zoöspores; *c*, zoöspores inside a filament; *d*, filament showing oögone and antherid; *e*, filament after fertilization of oögone. Magnified. (Original.)

few species in the living tissues of animals. It is this plant that causes a disease which is very destructive to salmon. These plants closely resemble Vaucheria,—a green plant to be studied later,—in the processes of reproduction, both sexual and asexual. The plant *Achlya prolifera* is a type. It may be easily raised by placing dead flies in water. After a few days, transparent or whitish branched filaments grow from various parts of

their bodies. In general outline the tubular partitionless filaments resemble the branching filaments of Vaucheria. In the methods of reproduction the resemblance is also striking. The asexual reproduction is by the formation of zoöspores which develop in special cells that become cut off from the rest of the filament by transverse partitions. The zoöspores are flagellated and swim about in the cell in which they are formed before they are liberated by the decay of the cell-wall. They are then set free and swim about in the water for a time. They finally develop into new filaments of the plant.

The sexual reproduction is as follows: Globular oögonia are developed at the extremities or at points along the sides of the branches. The antheridia are borne on the extremities of small branches that develop just below the oögonia. The antheridia penetrate the oögonia, but the actual transfer of antherozoids, or of protoplasm in any form, into the oögonia has never been observed. The egg cells are believed to be fertilized parthenogenetically, i. e., without receiving the contents of the male elements. The fertilized eggs are discharged and grow into new plants.

Parasites that grow on pond scums, desmids, diatoms, and other fresh-water plants are related to the Saprolegnieæ, as also are parasites that may be found on Plantain, the Mints, the Evening Primrose, and some leguminous plants.

The **Mildews** and **White Rusts** (the *Peronosporeæ*) are especially important members of the class on account of their destructive effects on valuable food plants. They may be found on the Grape as mildew, *Peronospora viticola*. One species, *Phytophthora* or *Peronospora infestans*, causes a potato disease; another species, *Cystopus candidus*, grows on Lettuce, Radish and Shepherd's Purse; another on Spinach, *Peronospora effusa*; another, *Cystopus bliti*, grows on Pigweed in late autumn. The rapid spread of these diseases is caused by the dissemination of the spores by the wind. The spores fall on the plants, and develop, sending their rhizoids through the stomata or the thin, moist epidermis of the leaves, developing *haustoria*,—a special form of mycelium growth,—in the cells of the plant on which they are parasitic.



FIG. 20. Diseased potato leaf.

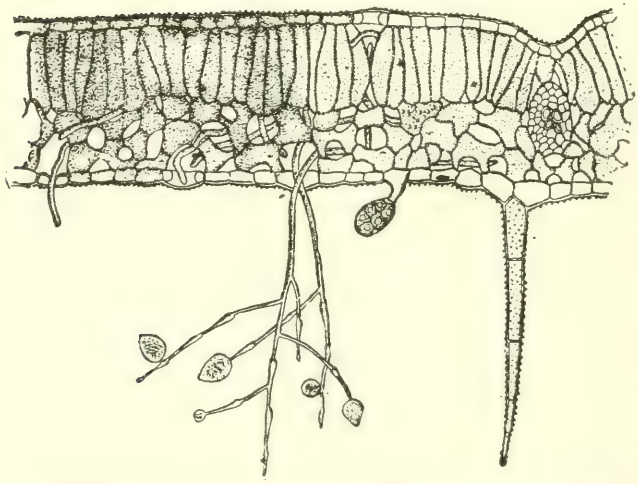


FIG. 21. Section of potato leaf showing development of mildew.

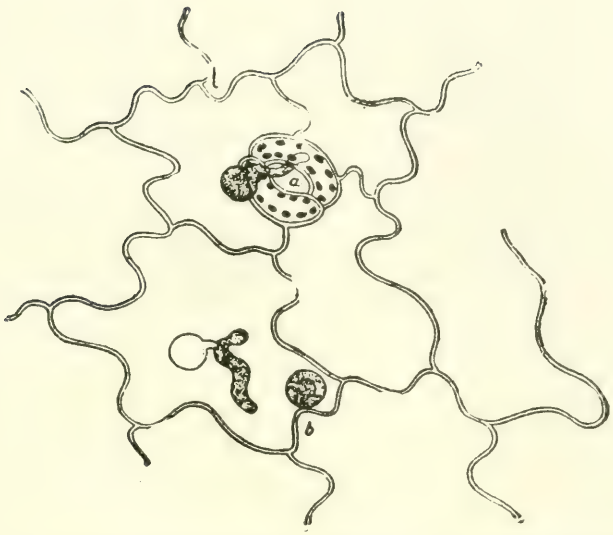


FIG. 22. Surface of potato leaf greatly magnified, showing germinating spore entering breathing pore at *a*, and going through epidermis at *c*.

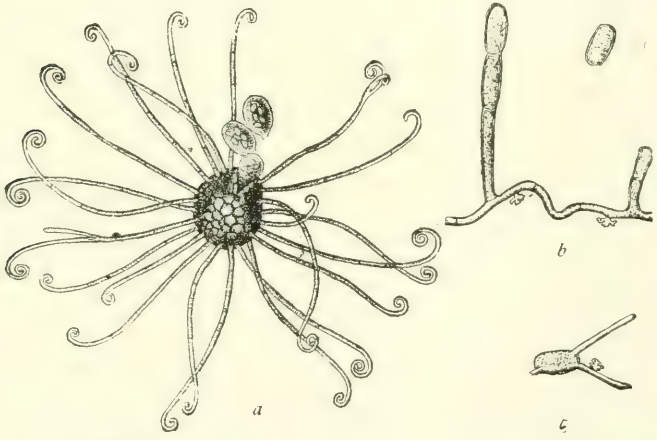


FIG. 23. Powdery mildew of grape magnified. *a*, perithecium; *b*, mycelium; *c*, germinating spore.

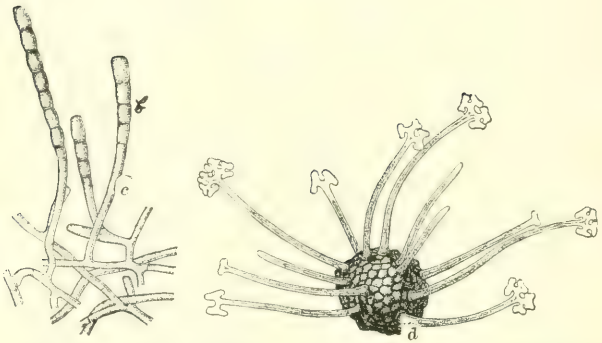


FIG. 24. Apple powdery mildew. *c*, mycelium forming summer spores; *d*, winter spore case. Magnified.

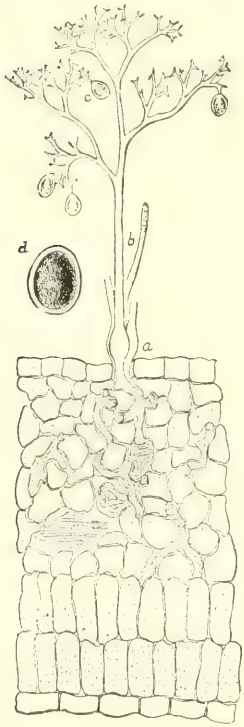


FIG. 25. Spinach mildew. Section of leaf showing mycelium and development of spore. Magnified.

Stalks rise from the mycelium of mildews through the stomata and develop at their ends gonidia filled with spores. The gonidia of the white rusts are developed in chain-like rows just below the epidermis. The oögonia and antheridia of the sexual reproduction are also produced beneath the epidermis in the inter-cellular spaces of the host plant, on branches of the stalks or hyphae.

CYSTOPUS CANDIDUS. PRACTICAL STUDIES.

Obtain some Shepherd's Purse or some Purslane, and some of the flowers of Radish, affected with Cystopus. Preserve in alcohol. Alcoholic material may be used for all the observations except Number 3.

1. Notice the *sori* or white spots formed by the fungus on the leaves. Find some that are beginning to form under the epidermis. As the fungus develops, the epidermis gives way and the Cystopus is exposed to the air. Shake a matured and dry specimen

over a dark surface and some of the asexual spores will fall out.

2. With the forceps tear off some of the white growth and mount in water. Examine with high power. Numerous ovoid asexual spores of Cystopus will be found. If the specimen was not too dry, some will be found still connected in short chains. Do you find chlorophyl-bodies? Test for starch. Is it present?

3. Place some fresh leaves bearing Cystopus in a warm, moist chamber over night. In the morning mount some of the white growth in water. After an hour or so examine for motile *zoöspores* which have escaped from the spores. After watching their motion for a time, run iodine solution under the cover-glass and determine whether or not the motion is produced by cilia. Draw. The zoöspores remain motile only a short time. They then grow by cell-division and produce new plants of Cystopus.

4. Under the cover of a preparation similar to that in Number 2 run Schultze's solution. Is the cell-wall composed of ordinary or of fungous cellulose?

5. Macerate in caustic potash for some time small pieces of the leaf bearing the Cystopus, taking care to put in as little as possible of the healthy parts of the leaf. Then tease out the Cystopus sori in a drop of water on a glass slip, add a drop of Schultze's solution, cover, and examine. Find tangled masses of the *mycelium* which have been torn out of their positions in the cells of the host plant. Do you find septa? Draw a portion of the mycelium showing the *hyphae* and the chains of asexual spores in position on the hyphae.

6. Place a leaf bearing sori between two pieces of pith and cut delicate transverse sections through the sori, keeping the pith and razor wet with alcohol. Examine some of the sections, applying Schultze's solution. If the sorus was young, the conidiophores (stalks bearing the asexual spores) will be found just below the epidermis of the host. If the sorus was old, the epidermis of the host will have broken away and its edges will be turned out. Look for *haustoria*,—the minute transparent globular suckers which the Cystopus sends into the

cells of the host to rob them of their contents. These will be most easily found in the youngest sori. Draw several, showing their attachment to the mycelium. If they cannot be found in the sori on the leaves, look for sori on the pedicels of the youngest flowers of Radish, section, and examine.

7. Stain thin sections of the diseased flowers of Radish with Schultze's solution and examine for the organs of the sexual reproduction. The nearly spherical oögonia and antheridia take a deep red stain. The antheridia are smaller than the oögonia. Draw a typical pair. Notice the *ova* in the oögonia. Find also in mature oögonia the *oöspores* which result from the fertilization of the ova. These oöspores are the resting-spores. Protected by the greatly thickened tissues of the flowers, they lie dormant through the winter. In the spring they are set free by the decaying of the flowers, are scattered about by the wind, and falling on favorable plants produce new crops of Cystopus.

It may in some cases be possible to see a fine tube connecting the antheridium with the oögonium. Were the antheridium necessary in all cases for the fertilization of the egg-cell, the connecting tube would be seen in many cases, but it is probably the fact that fertilization is in most cases by parthenogenesis.

IV

THE ALGAE

The Algae are all chlorophyl-bearing plants. A very large number of plants is here included. They are all comparatively simple, but differ among themselves widely in the degree of complexity of structure. They all live in the water, though certain forms can exist in a dried up inactive condition for indefinite periods of time; these latter forms multiply and develop only when moisture is present. In the processes of reproduction there is a considerable range of variation. It is believed that both a sexual and an asexual mode of reproduction occur in nearly all cases; this point is not, however, settled in quite a number of families owing to the lack of sufficient investigation. The mode of asexual multiplication differs in the different families from the simple fission of the cells to the formation of non-motile *tetraspores* in one class up to the formation of self-motile zoöspores, which is the prevailing mode. There are eight classes in this sub-division, the *Coenobieae*, the *Multinucleatae*, the *Confervoideae isogamae*, the *Conjugatae*, the *Phaeosporeae*, the *Fucaceae*, the *Confervoideae heterogamae*, and the *Florideae*.

The Coenobieae.—The characteristic that distinguishes this class is the formation of a *coenobe*, which is a colony composed of cells that result from repeated fissions of a mother-cell. The number of cells that compose the colony is always some multiple of two. These cells are held together in regular form by a sheath of a gelatinous nature. Here are included some forms of singular beauty and interest. There are five orders. Among the common organisms are the following:

Pandorina is a sphere made up of sixteen minute cells inclosed in a gelatine-like mass. Each cell is provided with a pair of flagella, which project through the gelatinous envelope.

The reproduction of the plant is effected in two ways, asexually and sexually. The asexual reproduction is by the breaking up of each of the sixteen original cells into sixteen still more minute cells. The gelatinous covering then dissolves and sets these sixteen young groups of cells free. Each group becomes

invested with an envelope of its own and develops into a full-sized sphere.

The beginning of the sexual process is similar to the asexual. Each of the original sixteen cells breaks up into sixteen other cells, each of which is set free by the breaking away of the gelatinous covering. Each cell is provided with two flagella which enable it to move about. Two of these cells meeting unite their contents into a spherical mass which becomes invested with a cell-wall. The sphere thus formed is the resting-spore. After a time, when the conditions for growth are favorable, the cell-wall decays and sets free the two or three little cells that have formed within it. Each of these cells has a pair of flagella. After a period of activity, it comes to rest, and the cell-contents divide and subdivide to form sixteen cells covered with a gelatinous envelope, thus producing a new plant similar in all respects to the original.

Pediastrum occurs in colonies made up usually of sixteen cells. These form a flat disc which floats on the water.

Hydrodictyon, or the **Water-Net**, is a somewhat rare plant. It is much larger than Pandorina, sometimes being six or seven inches in diameter. It is made up of a green open network of filaments or tubular cells.

The asexual reproduction is brought about by the formation of a great number of swarm-spores in certain of the tubular cells. If the cell is observed at the right time, these swarm-spores may be seen in active motion. The motile condition does not last long, but the spores arrange themselves in a methodical way in the cell. The cell-wall now breaks down, and the colony of little cells develops into a full grown water-net, which escapes through the gelatinous wall of the mother-colony.

There is also a sexual method of reproduction. Enormous numbers of *micro-zoöspores* are formed in certain of the tubular cells of the mother colony. By the breaking down of the cell-wall, these micro-zoöspores escape. Each has a red spot known as the "eye-spot." Each also has four flagella. After a period of motility, they come together in pairs and form green zygospores enveloped with a wall of cellulose. This is the resting-spore. It closely resembles the resting-spore of Protococcus. Buried in

the mud at the bottom of ponds and streams, these resting-spores retain their vitality against drought for a long time, but will not endure exposure to strong light. When the conditions are again favorable for growth, the endochrome, or colored contents of the spore, separates into either two or four parts, the cellulose wall breaks away,and the newly formed zoöspores work their way out of the cell by means of the two flagella with which each is provided. They are not very active. They soon become angular in shape, in which condition they rest for a time. They then divide and subdivide, forming numerous micro-zoöspores, which are active for a time. These then arrange themselves in the net form, develop a new gelatinous covering, and grow very rapidly into a full sized water-net.

Volvox globator is a type of one of the orders of this class. This tiny little organism, which has long been an object of peculiar interest to microscopists, is the best known plant of its class. It reaches a size just visible to the naked eye, and is found floating on the water in still pools. A good way to look for it is to place quantities of pond weeds and scums in glass dishes, allow them to stand undisturbed for a time, and then search with a hand magnifier for little green specks rolling through the water. Volvox was long supposed to be an *animal*; later it was regarded as a colony of animals. Professor Stein, an eminent German biologist, describes it as an animal, in a work published in 1878. Biologists now generally class it as a colony of plants, though some prefer not to express a positive opinion. The colony is spherical in shape, the interior being hollow. The shell of the sphere, so to speak, is composed of a great many little green cells. These cells are larger at one end than at the other, and have the little end, which has a pair of flagella, protruding from the surface of the sphere. The colony is motile, the motion being produced by the lashing of the water by the flagella. Under their combined influence, the colony rolls or glides along, or simply rotates in its position without motion from place to place.

The whole colony is green in color because of the presence of chlorophyl granules in the protoplasm of the flagellate cells. These cells closely resemble the flagellate cells of *Protococcus*

pluvialis, and could hardly be distinguished from them were it not for the manner in which they form spherical aggregations, while the cells of Protococcus naturally separate.

The reproduction is by both the asexual and the sexual ways. The asexual multiplication occurs in the earlier part of the season. A flagellated cell divides and subdivides into many parts which escape into the interior of the mother colony where they unite to form a new colony.

The sexual multiplication occurs late in the season. Some of the flagellated cells develop into sperm-cells, the male elements; others develop into germ-cells, the female elements. Both germ-cells and sperm-cells may be produced by the different differentition of the flagellated cells of the same colony, or they may be formed on different plants. When the germ-cells have matured, they are loosened from their positions in the shell of the colony and pass into the hollow interior. In the sperm-cells a great many antherozoids or minute cells provided with flagella are developed. These are set free by the breaking down of the wall of the cell in which they are formed, and, swimming about, find their way into the interior of the colonies containing the germ-cells, which they meet and fertilize. There results a resting-spore with a thick cell-wall. After a period of rest, the resting-spore, when favorable conditions exist, resumes active life. Its protoplasm breaks up into a great many small cells which assume the spherical form and grow to be a full sized colony.

The Multinucleatae.—Here are grouped together plants that possess a large number of nuclei. Each plant is ordinarily composed of one large single cell, branched, and with many more or less distinct nuclei. There are four orders. The most important plants are the **Siphoneae or Coeloblastae.** These are branched filamentous plants, each consisting of one cell, there being no transverse divisions except where the reproductive organs are formed. The protoplasm is continuous throughout the filaments. They vary considerably in size and occur under somewhat different conditions. They are of common occurrence in both fresh and salt water.

The Siphoneae are represented by the **Vaucheriaceae or Green Felts.** These are for the most part fresh water plants, though a few species are found in salt water. They grow in the water and on the bottom and sides of ponds and ditches, and on the wet ground around springs, forming felt-like masses of a dark green color. They are abundant in damp places in greenhouses on the ground, and on the surface of the soil in the beds and in the flower pots. The lack of partitions across the filaments at once distinguishes these plants from the other green algae. The protoplasm does not fill the filaments full, but, leaving the central portion empty, forms a thin lining next to the cellulose wall. Minute chlorophyl granules, together with numerous little shining drops of oil, are scattered regularly through the protoplasm. Numerous nuclei are present, but they are difficult of demonstration.

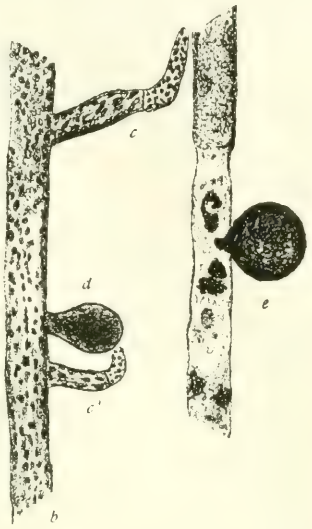


FIG. 26. Vaucheria: *b*, fruiting filament; *c*, antherid; *d*, oögone; *e*, resting spore. Magnified. (Original.)

VAUCHERIA—PRACTICAL STUDIES.

1. Examine with the naked eye and with a hand magnifier a quantity of Vaucheria. Notice its dark green color and felt-like appearance.

2. Mount a little in water and examine with the low power. Notice that each plant is made up of one branched cell. Look for colorless rhizoids, which may be found if the specimen grew on the surface of soil. Draw a typical filament.

3. Observe the green chromatophores scattered uniformly throughout the cell. Treat with iodine solution. Is starch present?

4. In a fresh mount look for bright shining oil globules scattered among the chromatophores. Treat with a one per cent. solution of osmic acid. This demonstrates the presence of oil globules by turning them black.

5. Plasmolyse a fresh mount with ten per cent. salt solution, and study the primordial utricle.

6. Run dilute caustic potash under the cover of another mount, and study the cell-wall. Treat still another mount with Schultze's solution. Is the cell-wall composed of normal cellulose?

7. Keep some of the Vaucheria moist and in the dark for some time previous to the examination. Mount some in water without a cover-glass, and look for filaments with enlarged ends. If present, find as many different stages of development as possible. This is the asexual mode of reproduction. The ends of the filaments enlarge and become cut off from the rest of the filament by a septum; the protoplasmic contents assume an ovoidal form and become invested with cilia arranged in pairs; the end of the filament opens, and the zoöspore swims out by the action of its cilia. The motion of the zoöspore may continue for only a few minutes, or it may last for some hours. As soon as it comes to rest it loses its cilia, develops a cell-wall, and grows into a new plant. The observer who succeeds in finding these zoöspores is rewarded by the sight of one of the most beautiful objects in the plant world.

8. Find filaments bearing the sexual reproductive organs. In most species of Vaucheria both the male and female organs are borne on the same filament, *i. e.*, the plants are monoecious. These organs originate as lateral branches near together on the same side of the filament.

As the oögonium matures, it assumes a shape that has been described as "like a bird's head"; a septum forms at its base which separates it from the filament, thus forming the ovary; its distal end becomes gelatinized and breaks away, leaving the naked protoplasm within exposed. This protoplasm is the *ovum*; it is somewhat ovoidal in shape, is coarsely granular, and is of a dark green color.

The antheridium is longer and more slender, and is curved.

It is lighter in color, as there is but little chlorophyl present. The distal end becomes cut off from the rest by a septum, thus forming the *spermary*; the protoplasm of this portion breaks up into numerous antherozoids, each having a pair of flagella.



FIG. 27. Filaments of Chaetophora elegans, with zoöspores (*a*). Magnified. (Original.)

When fully mature, the antherozoids swim out through the upturned outer end of the antheridium and find their way to the entrance of the oögonium. One, at least, of the antherozoids fertilizes the ovum. A resting-spore is thus formed, which assumes a reddish brown color, becomes encysted in a thick cellulose wall, and develops oil-globules in the interior. After its period of rest, the resting-spore develops into an ordinary Vaucheria plant, which passes through several generations by the asexual mode of reproduction before resting-spores are again formed.

Draw a typical pair of the reproductive organs.

The Confervoideae isogamae.—The plants of this class are either branched or unbranched filaments of cylindrical cells. The sexual reproduction is *isogamous*, *i. e.*, it is between elementary cells that cannot be distinguished as male and female. These cells are ciliated and motile; they may develop from any of the cells of the filament. The asexual multiplication is by means of ciliated zoöspores which may also form in any of the cells of the filament. These plants grow by the transverse division of an apical cell or of cells that are intercalated in the filaments. There are four orders. Common plants are **Chaetophora and Cladophora.** Cladophora, or **Water-Flannel,** is very common. It grows in running water forming long, dark-green stringy masses attached to some fixed support at one end. It is made up of branching filaments formed of elongated cylindrical cells with thick stratified walls. The branches develop from a sort of bud formation near the top of the parent cell. As the new branch forms, it becomes separated from the parent cell by a partition wall that forms close to its base. The cells are lined with protoplasm and are also divided by thin plates of protoplasm into a number of vacuoles.

The Conjugatae.—The sexual reproduction in this class is by the formation of zygospores by the conjugation of cells that are apparently just alike. The asexual reproduction is by the transverse fission of the cells. The three orders of the class are the *Desmidiaceæ*, *Zygnemaceæ*, and *Mesocarpaceæ*.

The **Desmidiaceae** were long classed as animals. There is now considered to be no doubt that they belong to the plant world. The desmids are fresh water plants. They are microscopic in size and are of a vivid green color. They usually occur isolated, although they are sometimes seen in short filaments, for they grow by the binary division of the cells and, as in the case of Protococcus and other one-celled plants, the cells sometimes remain adherent for a time. The cells are bilaterally symmetrical, *i. e.*, the two halves of each cell are just alike. This fact helps to distinguish some forms from diatoms. Another distinguishing characteristic is the possession of projecting points or spines. These two facts and the bright green color are great helps in their identification.

The cell contents are enclosed in a cellulose wall of considerable firmness, and a more or less distinct gelatinous covering envelops the cell-wall. The protoplasm contains chlorophyl and its product starch, and is arranged in bilaterally symmetrical patterns in the two halves of the cell, making the desmids very attractive objects. The ability which they possess to move about adds to the fascination of their study under the microscope.

A great many varieties of desmids are found. They are to be looked for associated with plants growing in the water, and in the mud on the bottom of slow flowing streams, and in the shallow pools of somewhat clear water in swamps and by the



FIG. 28. Two Common Desmids: *a*, *Closterium lunula*: *b*, *Euastrum didelta*. Magnified. (Original.)

roadsides in spring and early summer. Water that is decidedly stagnant or that which flows rapidly will not yield many forms.

The desmids multiply asexually by the formation of a partition that separates the two halves of an individual cell. Each of these halves develops until it is again bilaterally symmetrical, when the process of cell-division may be again repeated.

The desmids are also reproduced in the sexual way by the conjugation of two individual cells. The zygospore thus formed grows by the process of cell-division. The conjugation seems to take place to give new strength and vigor to the plant.

The Zygnemaceae are very common and familiar objects, some of them forming great masses upon the surface of stagnant pools and ditches. They are commonly known as "pond scums." When in active growth the masses are of a vivid

though somewhat yellowish green. The plants are unicellular, but as the cells are joined together by a gelatinous covering, they form long unbranched filaments, or linear aggregates. The gelatinous covering gives them a slippery feeling when a mass is taken in the hand.

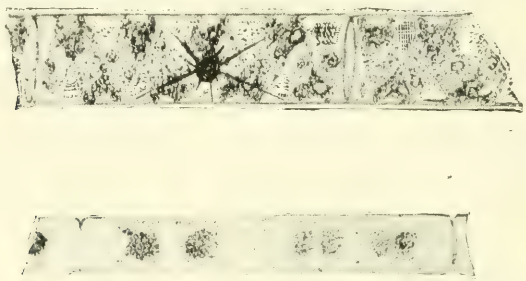


FIG. 29. Forms of Zygnemaceæ: *a*, Zygnema; *b*, Spirogyra. Magnified. (Original.)

There is a large number of species, which are distinguished by the different arrangements of the chlorophyl granules and bands. The disgusting masses of slimy material, when seen under the microscope, are resolved into forms of great beauty. In some species the chlorophyl bodies are scattered quite regularly over the entire surface of the cell. In others they collect into two somewhat star-like masses connected by a narrow band, giving a shape resembling a dumb-bell. In others they collect into spiral bands. The last forms are known as *Spirogyra*, of which there are many varieties.

The asexual reproduction is by the transverse fission of the cells. It is the usual process of the division of the protoplasm and the formation of a cellulose wall across the cell. The division takes place in the dark. It is best observed by keeping the plants in a totally dark place for some hours and then examining at once. This mode of reproduction accounts for the long unbranched filaments.

The sexual reproduction may be seen at various seasons, but is more likely to be met with in spring or in summer. When the plant is at this stage it takes on a brownish color. The male and female filaments cannot be distinguished from

each other even under the microscope, but when two filaments of opposite sexes happen to be in proximity to each other, projections develop on the adjacent cell-walls until they meet. The cell-walls break away at the junction, and the contents of the male cell are emptied into the other cell. A zygospore is thus produced that becomes encysted and falls to the bottom of the water where, imbedded in the mud, it preserves the life of the plant until the next season. On the return of spring the zygospore grows in the asexual way into a new filament.

SPIROGYRA—PRACTICAL STUDIES.

1. Observe the light green color of the plant when seen in mass. Notice that most species are slippery to the touch. Place a little in water on a glass slip, hold the slip over a white surface, and notice that the plants form fine unbranched filaments of uniform diameter; use a hand magnifier, if necessary.

2. Let a quantity of Spirogyra stand in alcohol for a short time. Then notice the color of the alcohol both by reflected and by transmitted light. Describe the colors. Notice also that the filaments of the Spirogyra are now colorless.

3. Mount a very little of the Spirogyra in water. Examine with the low power and notice that each filament is made up of cells which are just alike. The plant is unicellular, although at first sight it seems to have many cells. The long filaments are to be accounted for by the fact that one mode of reproduction —the asexual—is by the transverse division of the cells, the new cells being held together, end to end, by a very delicate gelatinous membrane. Any of the cells may divide.

4. Examine with the high power. Notice the spiral bands of chlorophyl—the chromatophores or chlorophyl-bodies. The number of these bands differs in different species. Several species may be present in the mount. If not, mount specimens obtained from different localities until a number of different forms of the chromatophores has been observed. Draw three cells of each species found.

5. Notice the roundish bright spots that occur at intervals in the chromatophores. These are the pyrenoids.

6. Run iodine solution under the cover-glass. Focus upon filaments that are just beginning to take the stain. If the Spirogyra has been in the sunlight for some time, a ring of dark blue—almost black—particles will be seen around each pyrenoid. These are *starch* granules. The chromatophores of chlorophyl-bearing plants are the laboratories in which the starch is manufactured.

7. Run glycerine under the cover-glass of the specimen that was treated with iodine solution. Note that the slightly stained protoplasm shrinks from the cell-wall. The cells may also be plasmolyzed by running ten per cent. salt solution under the cover. The protoplasm contracts and the *primordial utricle* is brought into view. Notice the large centrally situated vacuole.

8. Run solution of caustic potash under the cover-glass. This brings the cell-wall into more prominent view. Trace a filament to its end. Notice that the filament is of uniform width, with perhaps an occasional accidental enlargement or contraction, the cells being of the same shape with the exception of the end cell, which differs from the others only in having its extremity more rounded.

9. Run Schultze's solution under the cover-glass of a fresh mount. Notice and describe the effect on the cell-wall and on the cell-contents.

10. Find the nucleus in a fresh mount. In some species the nucleus is very prominent; in others it cannot be made out. Search material from different localities until good specimens are found. Draw a cell showing all the details of structure, especially the nucleus, nucleolus, and the manner in which they are suspended in the centre of the cell by strings of protoplasm running to the pyrenoids. Treat different mounts of material showing the nucleus with iodine, alcohol, 10 per cent. salt solution, and with different stains.

11. Find material in the conjugating condition. Here again it may be necessary to search the material from several localities. Find, if possible, specimens in which the zygospores are formed in the cells of one of the filaments, and others in which they are formed in the conjugating tubes between the filaments. Draw in detail typical cases.

12. Place some freshly gathered, vigorous Spirogyra in a refrigerator over night. In the early morning examine for the division of the cells by the asexual process. This division takes place, under natural conditions, at about the middle of the night. Cold delays the process. Make drawings showing as many different stages as are found.

The Mesocarpaceæ are distinguished from the Zygnemaceæ by the arrangement of the chlorophyl in straight bands in the longitudinal direction of the cell rather than in spiral coils and



FIG. 30. Mesocarpus: *a*, conjugating cells; *b*, vegetative cells. (Original.

dumb-bell shaped figures. The sexual multiplication is by a process of conjugation similar to that of the Zygnemaceæ; the asexual reproduction is by the separation and subsequent fission of the cells of the filaments.

The Phæosporeæ.—These are for the most part seaweeds; a few occur in fresh water. The **Kelp** and **Laminaria,** so common at the sea-shore, are well known plants of this class. Chlorophyl is present, but it is masked by brown coloring matter which is so abundant as to give the plants their olive, brown, or yellowish-brown color. A considerable degree of differentiation is found in the tissues.

The common Devil's Apron is a type of these plants. The differentiation of structure is shown in the stem-like stalk and in root-like appendages that enable it to cling to some fixed support. In the Pacific ocean a giant kelp is found that is said to have a length of 800 or 900 feet.

Zoöspores provided with two flagella each are known to be formed in some of the cells, but the union of the zoöspores to form zygospores from which new plants can develop has been observed in only a few cases.



FIG. 31. A Common Rockweed: *a*, part of branch; *b*, antherid; *c*, oögone before division; *d*, oögone after division. *b*, *c*, and *d* magnified. (Original.)

The Fucaceæ or Rockweeds.—The plants of this class are all inhabitants of the salt water. The ordinary Rockweeds are types. These plants grow attached to the rocks by a disk-like expansion of the root ends—so to speak. The stem divides and develops into expanded portions which resemble leaves, being flat, and possessing an enlargement like a midrib. The plants

have at intervals air-sacs, which are evidently nature's provision for buoying them up.

The only approach to asexual reproduction in Rockweeds is the formation of little shoots on the edges of the larger branches. It is possible that these separate from the parent plant and grow into new plants; this, however, is not established, and asexual reproduction is not positively known to occur.

The sexual reproduction is better understood. Certain branches become swollen at the ends. In these enlargements the sexual organs develop. The antheridia may be seen in sections through these enlargements as orange-yellow masses; the oögonia are borne either in the same cavities or in cavities on other plants. The eggs that develop in the oögonia are set free into the water, and the flagellated antherozoids, liberated from the antheridia, find and fertilize them. This, at least, is the belief, but the actual entrance of the zoöspore into the egg has never been observed. After fertilization, the egg secretes a wall about itself, enlarges, attaches itself to some fixed support, and grows into a fully developed plant.

FUCUS VESICULOSUS.—PRACTICAL STUDIES.

Fucus vesiculosus, or **bladder-wrack,** is the most widely distributed of the Rockweeds. The frond or thallus is wide and flat. The air-sacs, which are conspicuous, are arranged in pairs on the distinctly dichotomously dividing frond.

1. Observe, if possible, the plants growing in their natural positions attached to the rocks. Draw an entire plant, labelling the attachment-disk, stipe, frond, midrib, air-sacs, and the enlarged ends of branches which bear the conceptacles containing sexual reproductive organs.

2. Thoroughly dry and pulverize some of the Rockweed, and place it in cold fresh water. The water soon takes on a brownish color, due to the special pigments which give the brown and olive colors to the plant.

Place pieces of fresh Rockweed in alcohol. The alcohol dissolves the chlorophyl and assumes a yellowish-green color.

3. Place a piece of the frond that has been preserved in alco-

hol between two pieces of pith and cut thin transverse sections. Mount in glycerine. Notice the differences between the centrally situated medullary cells and the cortical cells. Can you make out an epidermis? The increase in thickness of the frond is effected by the division of the outer cells of the cortex. Draw the entire section. Test for starch. Is it present? Run Schultze's solution under the cover of another preparation. Are the cell-walls composed of normal cellulose?

4. With the hand-magnifier notice the distinct notch in the ends of the branches that do not bear conceptacles, *i. e.*, those that are not swollen. Then make longitudinal thin sections through the notches, using alcoholic material. Mount in glycerine. In some of the sections a well-defined four-sided apical cell will be found, surrounded by cells which have had their origin in the segmentation of the apical cell. It is by this form of cell-division that the plant increases in length. Observe also in this section the distinction of medullary, cortical, and epidermal cells.

5. Make sections, both transverse and longitudinal, through the air-sacs. Do you find the same distinctions of medullary, cortical, and epidermal tissues that you have already found in the transverse and longitudinal sections of the frond? Do the structures found help you to judge how the air-sacs were formed?

6. Examine with a hand-magnifier the conceptacles on branches that were gathered at high tide and have hung about six hours in a cool place. The male and female conceptacles are borne on different plants in the case of *Fucus vesiculosus*. The male are distinguished from the female by an orange-colored exudation. Notice the warty appearance of the conceptacles. Also the *ostiole*, or *stoma*, at the apex of each wart. In many cases tufts of delicate hairs project from the ostioles.

7. Using alcoholic material, make thin transverse and longitudinal sections through a branch bearing male conceptacles. Examine with low power. What is the shape of the conceptacles? Do you find numerous hairs or *paraphyses* in the conceptacles? Do they in some cases project through the ostiole? Are they branched or unbranched? Are they unicellular or

multicellular? Draw a conceptacle, showing all you can see under low power. Find small ovoid *antheridia* borne on the paraphyses, using the high power. Draw several antheridia, showing their attachment to the paraphyses. Can you distinguish the *antherozoids* in the antheridia? Mount in sea-water a drop of the orange-colored exudation mentioned above and examine it for moving antherozoids. Determine how the motion is produced, using iodine if necessary.

8. Examine under low power transverse and longitudinal sections through an alcoholic branch bearing female conceptacles. What is the shape of the conceptacles? Notice the oögonia. In what part of the conceptacle are they located? How do they compare in size and shape with the antheridia? Both the oögonia and the antheridia are modifications of paraphyses. Compare the paraphyses in the female conceptacle with those in the male. Draw the conceptacle showing all you can see under low power.

Examine the oögonia under high power. Notice the transparent covering. Test it with Schultze's solution. Is it cellulose? See if you can find oögonia dividing into two, four, or eight oöspheres. Draw. Does each oösphere have a nucleus?



FIG. 32. Oedogonium, showing splitting of cells and escape of the ciliated zoöspores. (Original)

The Confervoideae heterogamae. — These are fresh-water plants. They are distinguished from the *Confervoideae isogamae* by the fact that the sexual reproduction is by the union of cells distinctly different from each other. There are three orders, the *Sphaeropleaceae*, *Oedogoniaceae*, and *Coleochaetaceae*.

The **Oedogoniaceae** are to be looked for in stagnant and flowing water, either in masses by themselves, or in association with other plants. They do not usually grow independently, but are supported by other plants or are attached to stones and the debris that accumulates in still water. The color is green, or

brownish-green. The enlarged cells that they bear at intervals distinguish them from other green algae.

The asexual reproduction of Oedogonium presents some points of interest. Large oval zoöspores are formed in cells that develop near the upper ends of the branches. When ripe, the cells split almost entirely across, the two portions bend apart, and the zoöspore, which has a number of flagella at its smaller and colorless end, swims out. After a period of activity the zoöspore becomes encysted and attaches itself to some

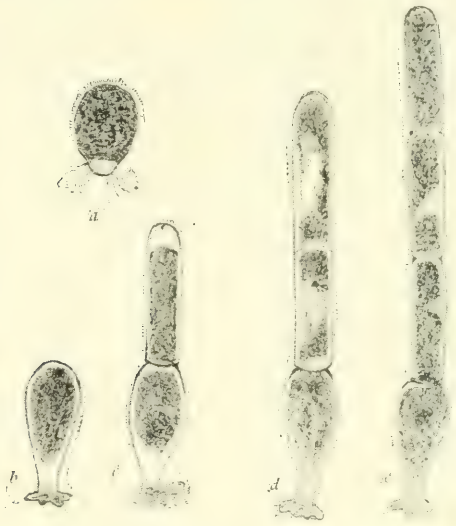


FIG. 33. Oedogonium : *a*, zoöspore ; *b–e*, young plants. Magnified. (Original.)

fixed object by its smaller end which becomes disk-shaped, and acts as a sucker. The larger end then grows by the usual process of cell-division into a new plant.

The zoöspores of some species develop in another way. These zoöspores, which are smaller than the common ones, affix themselves by their disk-shaped ends to filaments bearing oögonia. Here they develop into filaments of a few cells, the end cell becoming an antheridium, which liberates antherozoids to fertilize the eggs in the oögonia.

In the sexual reproduction the oögonia develop as enlarged cells at intervals on the filament. The antheridia develop in other cells on the same or on another filament. Flagellated antherozoids, set free from the antheridia, find their way to the

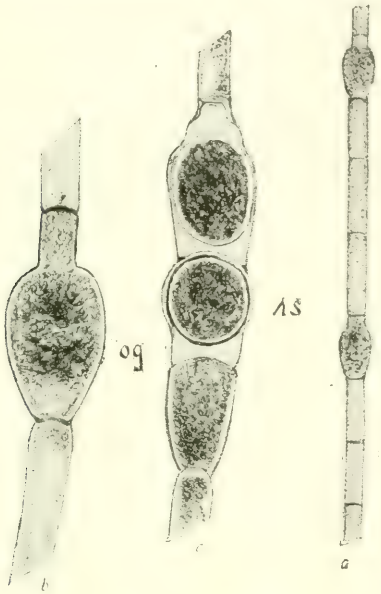


FIG. 34. Oedogonium: *a*, filament; *b*, showing oögone; *c*, showing oögone and resting spore. Magnified. (Original.)

ripened egg-cells developed in the oögonia and fertilize them. The oöspore thus formed develops a thick reddish-brown wall, and becomes a resting spore, which ultimately develops into a new plant.

The **Coleochaetaceae** resemble the red sea-weeds of the next class in a number of particulars, and are regarded as forming a link between the green and red algae. The color is bright green. They may be found on the leaves and stems of water lilies as disks one or two millimeters in diameter. These disks are made up of branching rows of cells radiating from the central part. If plants on which they grow are placed in the light in glass vessels they often leave their positions and seek the sides

of the containing vessel. Examined under the microscope, numerous hairs are found on the upper surface.

The asexual reproduction is by the formation of flagellated zoöspores. Any of the cells may produce these. When the zoöspore is ripe, a round opening forms in the cell-wall, and the zoöspore escapes. It then develops by cell division into a new plant.

The sexual organs are produced in the terminal cells of the branches. The end cells elongate, and the contained protoplasm develops into the female reproductive organ or carpogone. The antherozoids are produced in elongations from neighboring cells. The fertilization of the carpogone by the antherozoid has never been observed, but there is no doubt that it occurs. A covering or "pericarp" now grows from the cells just below the fertilized carpogone and envelops it. The pericarp and carpogone together constitute a spore-fruit. This spore-fruit preserves the life of the plant until the following season. Then, under favorable conditions, a number of flagellated zoöspores are formed and liberated, which after a period of activity develop by the asexual process into new plants.

Between the Coleochaetaceae and the Florideae there lies a number of forms that have not as yet been reduced to positions in the classification. Some are fresh-water plants; some are marine. Among them may be mentioned *Sea-Lettuce* and *Batrachospermum moniliforme*.

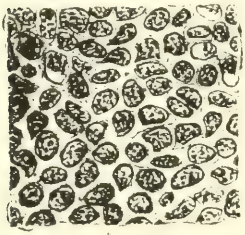


FIG. 35. Sea-Lettuce. The individual cells are shown held together by the investing membrane. (Original.)

Sea-Lettuce (*Ulva*) is recognized by its resemblance to the leaves of garden lettuce; it grows on the rocks and timbers in brackish and salt water.

The asexual reproduction is by the successive division and re-division of the cells in particular directions. In outward appearance the plant resembles the higher flowering plants, but a more minute examination reveals only the simplest structure of aggregations of cells produced by cell-division. There is wanting entirely anything like differentition of the cells to form

tissues of different kinds. The cells are held in position by an investing membrane, but this membrane bears little resemblance to the cuticle of the higher plants. Again the different parts of the plant differ as little in function as in form, any part being capable of reproducing the plant.

The sexual reproduction begins by the division of the endochrome, or colored contents, of some of the cells into many portions. These portions become motile, the cell-wall breaks down, and zoöspores, which are provided with two or four flagella, swim out into the water. The zoöspores are of two sizes. The larger ones, those having four flagella, are called megazoöspores; the smaller ones are microzoöspores.

The megazoöspores cling to some supporting object and develop asexually by cell-division into plants; the microzoöspores unite in pairs and form zygospores. The zygospores grow into new plants.

Batrachospermum moniliforme is a most beautiful plant, growing in fresh water; it is of microscopic size. It branches with great regularity and is a very interesting object under the microscope.

The Florideae or Red Sea-Weeds.—These are chlorophyl-bearing plants, many of them of great beauty on account of their delicate, graceful forms and on account of their red and purple colorings, which are due to pigments elaborated in the chlorophyl-bodies. The Florideae grow in the ocean in a somewhat narrow border along the coasts. Many forms grow at some depth in the water. These deep sea forms are often the most delicate and beautiful. The seas in warmer climates abound in these plants, but the waters of colder regions, even within the Arctic circle, produce some forms.

The reproductive processes in the red sea-weeds are very much like those already described for the Coleochaetaceae. There are, of course, variations in the different species. The asexual reproduction is by the formation of tetraspores in certain cells. The sexual reproduction, which has been less frequently observed, does not occur on plants that reproduce themselves asexually. It is therefore believed that there is an alternation between the two modes of reproduction.

V.

THE CHARACEAE OR STONEWORTS.



FIG. 36. *Chara fragilis*. (Original.)

The Characeae differ so much from all the plants below them and from all those above them that they are given a separate place in the classification. Their place is, however, far from settled, and writers of the highest authority differ in opinion in regard to them. They rank decidedly higher in complexity of structure than any of the plants thus far considered. A large number of species is found in the various parts of the world. Some occur in almost every locality. The species are all comprised in two genera, Chara and Nitella, which may in general be distinguished by the fact that a transverse section of the stem of Nitella is like the section of a single hollow tube; a similar section of Chara is like the section of a tube surrounded by a number of smaller tubes. A surface view of the portion of a stem of Nitella between two nodes shows a single large cell; a similar surface view of Chara shows a number of cortical cells overlying the large central cell. A few species of Chara do not have the cortical cells. The leaflets are single-celled in Chara; usually more than one-

celled in Nitella. The plants may be found in sluggish fresh-water streams and in ponds. They vary in color from a light to a very dark green. They grow attached by rootlets to the mud on the bottom. Some species grow only partly submerged; others are wholly covered by the water. The latter may be looked for by raking the bottom of ponds in the shallow water near the shore. The plant stem may be only a few inches in length or it may reach a length of some feet. The diameter is seldom much greater than that of an ordinary fish line.

The leaves grow in whorls from points on the stem called nodes. The lengths of stem between the nodes are called internodes. The stem also sends out branches from the axils of the leaves at the nodes, and each branch repeats the structure of the main stem. All the older portions of the plants have the cell-walls thickened by deposits of carbonate of lime which gives the plants their common names, Stonewort and Brittlewort. The main stem and each of the branches is tipped with an apical bud, which is composed simply of the young cells that are to develop into a new node and internode of the stem and a new whorl of leaves.

The sexual reproductive organs are borne on the leaves on the upper part of the plant. They are just visible to the naked eye. The antheridium is spherical in shape, and of an orange-red color; it grows on the under side of the base of a bract or leaflet. The archegonium is oval in shape, of a dark green, brown, or black color, and grows in the axil of the bract or leaflet, just above an antheridium. Both are modified leaves.

No asexual reproduction by spores is known to exist in any of the Characeae, but a vegetative reproduction by means of branches which fall off from the mother plant and grow into new plants occurs.

THE CHARACEAE.—PRACTICAL STUDIES.

1. Detach an entire plant of Chara or Nitella from the tangled mass in which it grows. Examine with a magnifying glass. Find the rhizoids or rootlets. Do you find them at more than one node? Do you find them on the internodes? Are they of the same color as the stem? Count the leaves in each whorl. Is

the number the same? State what number you find. Measure the lengths of the internodes. Are they all of the same length? Describe the reproductive organs as they appear under the hand magnifier. Also the apical buds. Draw the entire plant on as large a scale as your note book allows.

2. Obtain, if possible, plants of both Chara and Nitella. Examine under the low power. Draw and label an internode of each. Cut cross-sections of both, holding the specimen between two pieces of pith. Draw and label a cross-section of each. Examine any of the internodes of a Nitella plant or one of the youngest leaves of Chara. Are the chlorophyl-bodies arranged in any definite way? Notice the neutral zone that contains no chlorophyl-bodies. In what direction does it extend?

3. Under the high power examine any of the cells of Nitella or the youngest leaves of Chara for cyclosis or rotation of the protoplasm. Focus into the cell below the chlorophyl-bodies. Draw a cell showing the neutral line and indicate the direction of the currents by arrows. From time to time the currents stop and after an interval begin in the opposite direction. The cells of Nitella show cyclosis better than any other known plants.

4. Keep some Chara or Nitella in alcohol until the chlorophyl has been removed. Mount in alcohol, and run iodine under the cover-glass. Is starch present? If so, draw some of the starch granules. In another mount of fresh or alcoholic material determine whether the cell-walls are composed of normal or fungous cellulose.

5. Examine fresh young terminal leaves of Chara or Nitella in water. Find chlorophyl-bodies that are undergoing division; they are recognized by constrictions at the middle of the cells. Draw.

6. Cut off the end of a young internodal cell and press the protoplasmic contents out into a drop of water on a glass slip. Examine with high power. Describe the changes that occur as the cell-contents mix with the water. Do you recognize starch granules? Use iodine solution, if necessary. Notice also numerous large and small masses of proteinaceous matter floating in the colorless protoplasm. Do not confound these with the chlorophyl-bodies.

7. Dissect a terminal bud with needles, and mount in water. Run iodine solution under the cover-glass. Find the apical cell. Has it more than one nucleus? Observe the cells below the apical cell and see, if you can, how the nodes, internodes, and leaves result from the division and subdivisions of the apical cell. Draw. The apical cells of Chara and Nitella have been favorite objects for the study of the division of the cell on account of the large nuclei and the clearness of the successive steps in their differentiation.

8. Study the antheridium. It may be recognized by the naked eye or a magnifying glass as an orange-colored sphere. The color is due to a pigment which results from the ripening of the chlorophyl-bodies that line the inner surface of the cells. Notice under high power several circular cells on the surface. There are eight of these on each antheridium. Each of these circles is the outer end of a cylindrical cell which extends inward towards the centre. These eight cylindrical cells are the *manubria* or handles. Draw an antheridium, taking pains to represent clearly the circular cells and the polygonal cells which surround them.

By pressure on the cover-glass crush an antheridium. Find a manubrium. On its inner end notice an irregularly spherical cell, the *capitulum:* smaller spherical cells, the *secondary capitula*, project inward from the capitulum, and from each of these grow long filaments composed of minute cells. Each of these cells produces an antherozoid, a motile cell which bears two long flagella at its anterior pointed end. Each antheridium bears between 20,000 and 40,000 of these antherozoids. If the antheridium is of the right degree of maturity, the antherozoids can be seen in the cells of the filaments or swimming about free in the water. Find them if possible. Stain with iodine after they are found, to bring their very delicate transparent flagella into view. Under the cover of another mount run a very little gentian violet and look for the antherozoids in the cells of the filaments. This treatment will also frequently show the divided nuclei in cells that are undergoing division near the ends of the filaments. Draw all that you have seen.

9. Study the archegonium. This also may be recognized by

the naked eye or magnifying glass as an ovoid brown, green, or black body situated in the axils of the leaflets or bracts. Find archegonia in different stages of development. Under high power notice the spiral cells that envelop the egg-cell. Focus below the spiral cells on a young archegonium and make out all you can of the egg-cell. Notice the crown of cells at the apex of the archegonium. If possible, examine the crown in both Chara and Nitella and state how many cells compose it in each. When the egg-cells are ready for fertilization, antherozoids, which have been set free in the water by the decay of the antheridium, swim to the crown, find passage down through a central opening between its cells, enter, and fertilize the egg. The egg now matures, protected by its covering of cells. In time the archegonium drops off from the mother plant, sinks to the bottom *in situ*, or is carried by currents to other localities. When the conditions are again favorable, it germinates and produces a new plant. Draw an archegonium.

THE NUTRITION OF THE LOWER PLANTS

The nutrition of the Fungi and of the Algae differs in important particulars. The Fungi contain no chlorophyl. They are masses of colorless protoplasm either naked or enclosed in transparent membranes. In nutrition they are as a rule saprophytes, i. e., they are nourished from solutions by the absorption of somewhat complex matters that have been elaborated in other organisms and have been broken down by the chemical changes of decay into forms which can enter at once into the formation of protoplasm. How this absorption can take place in the case of organisms that are without cell-wall is evident enough. In the case of those organisms which consist of masses of protoplasm enclosed in continuous cell-walls, the absorption is by the physical process called *osmosis*. A simple experiment throws much light on the process. Tie a piece of bladder around the large end of a glass funnel, fill the inverted funnel with a strong syrup of sugar up to the stem and immerse the apparatus in water so that the syrup in the funnel and the water outside shall stand at the same level. After the apparatus has stood for some time, the liquid will be seen to have risen in the stem of the funnel above the level of the water in the outer vessel. This can be explained, of course, only by supposing that the water has passed through the bladder into the sugar solution—a process known in physics as *endosmosis*. If the water in the outer vessel be tasted or submitted to chemical tests, it will be found to contain sugar, which has passed out through the bladder by *exosmosis*.

That endosmosis occurs in the case of the vegetable cells under consideration is made clear by the treatment of the cells with various reagents, as when yeast cells are treated with iodine or are plasmolyzed with salt solution.

The chemical changes that occur in the cell-contents—whether those of building up or those of breaking down—are known under the convenient name metabolism. The building up changes are called anabolic; the breaking down, katabolic.

The saprophytes live and flourish in solutions containing

decomposing organic substances which find their way into the cells by the physical process of endosmosis in such a condition that the processes of constructive metabolism necessary for the building up of the protoplasmic molecules can begin at once.

In the case of the Algae,—as in the case of all chlorophyl-bearing plants,—the nutrition is holophytic. The processes are complex and are but imperfectly understood. There is no greater mystery in nature than this change of unorganized or elementary dead matter into matter endowed with life,—into that protoplasm which is essentially the same in plants and animals, and from which all living things from the simple naked celled Myxomycetes or Amœba up to the mighty oak or the noblest product of nature—man—have been developed under the guiding influence of the infinite wisdom of our Creator.

The chlorophyl-bearing plants that have thus far been considered all live in solutions, i. e., in water containing various substances both organic and inorganic in the dissolved state. Here, too, the dissolved substances find entrance to the cells by the process of endosmosis. But while the saprophytes can, in general, use in their nutrition only complex substances that have been partially prepared for them by other organisms, the holophytes can use as well certain simple inorganic substances,—in fact must have these inorganic substances to maintain their existence.

The chlorophyl-less plants require oxygen, and they throw off carbon dioxide as a waste product. Some of these plants,—notably the yeasts, but the statement is true of some others, as Mucor and the Bacteria—excite fermentation in the fluids in which they grow, i. e., they are *organized ferments*. The chlorophyl-bearing plants also take in oxygen and give off carbon dioxide, as may be demonstrated on plants kept in the dark; but in the sunlight this process of oxidation is obscured by the fact that large quantities of carbon dioxide are decomposed to supply carbon for the processes of constructive metabolism, oxygen being given off as a waste product.

Experiments show that chlorophyl-bearing plants cannot live in water which has been deprived of dissolved solids, of carbon dioxide, or of free oxygen; also that they cannot exist

in continued darkness, that they absorb carbon dioxide in the light, giving off an equal volume of oxygen, and that they absorb oxygen in the dark, giving off carbon dioxide. It is in the chlorophyl-bodies that the chemical changes of nutrition begin. These bodies absorb the carbon dioxide, and in them, under the influence of the kinetic energy furnished by the sunlight, the carbon dioxide is broken up into its elements, carbon and oxygen. After this initial step the processes of constructive metabolism are not dependent upon the light. From the carbon and oxygen, together with hydrogen from the water and nitrogen and sulphur from the mineral compounds dissolved in the water, complicated substances known as proteids are built up. These proteids together with some mineral constituents, such as sulphates and phosphates of calcium, potassium, and magnesium, and *water of organization*, probably through a long series of intermediate products, build up the protoplasm.

The protoplasm is no sooner formed than the processes of destructive metabolism begin, and it is broken down into simpler compounds. One of these, cellulose, is deposited to form the cell-wall. This relieves the internal pressure in the cell and prepares the way for further endosmosis of food materials from the solution outside of the cell; the processes of constructive metabolism are renewed only to give place again to the processes of destructive metabolism. Various katabolic products, such as starch and oil, are stored up as reserve foods, which will be more fully considered in another place.

In the case of the cellular plants that send up aerial branches, the dissolved nutriment rises by the physical processes of capillary attraction and osmosis through the walls separating the cells and is pushed on by a force from below which results from the turgidity of the cells, the nutrient solutions, for some unexplained reason, finding entrance to the cells more easy than exit from them. Thus a constant supply of food is furnished for the continued formation of the protoplasm and the cell-walls of the developing branches. From the large size of the Characeæ and their apparent resemblance to the higher plants one would expect to find modifications of these simple processes. An examination of the plants, however, shows that they are mere

aggregations of simple cells and that each cell probably elaborates its own nutriment from the materials absorbed from the water; exception may be made of the reproductive organs and the rhizoids which, at least in part, may receive by diffusion through the cell-walls the nutriment elaborated in other cells.

VI

THE BRYOPHYTES

A higher differentiation of root, stem, and leaf distinguishes the moss-plants from the plants of the preceding sub-divisions. There are no saprophytes or parasites in this sub-division. All the Bryophytes are chlorophyl-bearing plants of holophytic nutrition. Much moisture is necessary to their vigorous life; hence they are found in shady, damp places on the ground, on the lower parts of the trunks of trees, and on rocks. There are two classes in the branch:

Class I. The Hepaticae or Liverworts.
Class II. The Musci or Mosses.

Class I. **The Hepaticae.**—The liverworts are for the most part low, flat, thalloid plants. They grow in moist locations on the earth and on the rocks along streams and ditches, and, in great abundance, on the soil in damp greenhouses. The Common Liverwort, *Marchantia polymorpha*, is one of the largest of the class and is well suited for study.

There are two modes of asexual reproduction. By one, buds or gemmae are formed in little cups or cupules which grow on the upper surface of the frond; these, when ripe, fall out and are scattered over the ground where they take root and produce new plants. By the other mode, new and separate plants result from the dying away of the oldest portions of the frond. The frond branches dichotomously; as the older part dies, the branches become separated, and each continues its existence as a new plant. Reproduction by this mode is said to be by *innovation*.

There is considerable variation in the different orders of liverworts in the positions of the organs of reproduction. In some orders, both the male and female inflorescence are borne on the same plant; that is, the liverwort is monoecious. In other orders, the plant is dioecious. In the Common Liverwort, the male inflorescence is borne on umbrella-shaped branches. The branches rise an inch or more from the frond, and the antheridia grow from the upper surface of the scalloped-edged circular

top. The antheridia are modified hairs. The female inflorescence is borne on branches of other plants of about the same height as the male branches. The tops differ in that the lobes are slender and are cut well in towards the centre. The top has been compared to a wheel without the rim. The archegonia are borne on the under side, concealed in tissues in the grooves of the rays. These are also modified hairs.

The antherozoids, borne in the antheridia, swim out when there is moisture on the plant—drops of dew are sufficient—and find their way to the archegonia. Passing down through the neck, they come in contact with the egg-cells, which they fertilize. A spore-fruit results, and this, when the conditions are right, develops, by fission of cells, into a small and simple growth called a *protonema*, from which the new plant arises.

LIVERWORT.—PRACTICAL STUDIES.

1. Examine with the naked eye a considerable number of specimens of liverwort. It is not possible to find all the different stages of development at some seasons of the year, and alcoholic material must then be used in part of the work. Find, if possible, plants bearing cupules, some bearing the male inflorescence, and some bearing the female inflorescence. Notice how the plants branch. Examine the end of each branch. What do you observe? Do the two parts which result from a given division develop into branches of equal size? Do you find a midrib? If so, can you trace it along the main stem of the thallus and along the branches? Measure and state the length and breadth of several plants. Observe the color. Are all parts of the same color? Carefully remove some of the plants from the earth on which they grew and wash off the dirt. Compare the proximal and distal ends. Do you find that the stem rises as the continuation of a true root? Notice the numerous hairy rhizoids. What color are they? Where are they situated? Observe the cupules on some of the plants. What is their shape? Are they sessile or raised on stalks? Notice in them the little buds or gemmae. Draw specimens showing as many of the points observed as you can.

Examine plants bearing male or antheridial branches. Where on the thallus are the male branches borne? Measure and state the length of the pedicel or stalk in several specimens; also the diameter of the head or receptacle. Draw a receptacle seen directly from above, showing the exact number of lobes. Notice grooves on the pedicel. How many are there and where are they situated?

Examine plants bearing the female or archegonial branches. Where on the thallus are the female branches borne? What is the greatest length of pedicel that you find? Do you find grooves on the pedicel? If so, what is their number and where are they situated? Draw a receptacle seen from above, showing the number of lobes. Also draw plants showing the male and female inflorescence.

2. With a magnifying glass examine the upper surface of a thallus for rhomboidal areas or areolae. Observe that there is a small opening in the centre of each areola. This is a stoma or breathing pore, and is the first instance thus far met of the occurrence of an organ that is common to all the higher plants. Do you find areolae and stomata on the under surface of the thallus? Among the rhizoids find purple and colorless scales. On what parts of the thallus do you find each? Draw some of the scales and hairs.

3. Study the structure of the thallus using first low, then high power. Strip off some of the epidermis of the upper surface and examine the areolae, epidermal cells, and stomata. Draw a stoma as seen under high power, showing the number and arrangement of the exterior supplementary guard-cells and some of the surrounding epidermal cells. Focus down and notice the number, shape, and arrangement of the true guard-cells. Draw. In a similar way study the epidermis of the lower surface of the thallus. Draw a few of the epidermal cells, selecting some that show how a hair originates. Do you find stomata? Remove some of the hairs and study them under high power. Find two kinds, the fine silky rhizoids, situated directly under the midrib, and coarser hairs, showing projections extending inwards from a spiral constriction. The outline of the coarser hairs as seen in optical section appears scalloped.

Imbed a piece of the thallus in pith and cut transverse sections. Mount some in water and some in alcohol. Draw an entire section and indicate each of the following parts on it. Notice the row of colorless cells of the upper epidermis. Hunt along this row for a section through a stoma. If one is found, draw it. Below the epidermal cells, notice the rows of green parenchyma containing numerous chlorophyl-bodies. Determine if starch is present. In the green parenchyma, find air cavities lined with bright green cells. A stoma connects each air cavity with the outer air, but may not lie in the plane of the section. Below the green parenchyma, notice colorless parenchyma extending to the epidermis of the lower side of the thallus. Can you find hairs and scales growing from the lower epidermis? If so, draw them.

4. With a razor cut off two cupules. Mount one, face up, the other, face down, in water, pressing on the cover-glass to flatten them down. Notice on the first, under low power, a fringe of teeth; then examine one of the teeth under high power. What is its shape? Do you find any hairs? Using the second specimen, examine the lower surface of the mount for hairs.

Imbed in pith a piece of the thallus bearing cupules and make sections passing vertically through a cupule. Draw the sections under the low power. Examine under low power for gemmæ. Under high power, trace the development of the gemmæ. They should be found in all stages of growth.

Examine mature gemmae under both low and high powers. Make out the scar which shows where the gemma was attached to its stalk; also the two vegetative notches half way up the sides. Draw a gemma. Study also gemmae that have begun to germinate. Gemmae that have been in water for a number of days should be used. Compare with the gemmae that have not germinated. Draw. Sow some gemmae on sand in a moist chamber. Keep in the sunlight. They will sprout in a few days. Watch their development until the characteristic structures of the liverwort are apparent; make drawings at intervals.

5. Study the structure of the antheridial branch. Examine

the pedicel with a magnifying glass and notice the rhizoids and leaf-scales along the grooves. Examine a cross section of the pedicel under low power. Draw. Examine the same section under high power, noticing particularly the rhizoids and leaf-scales as seen in section.

With a magnifying glass observe the antheridia on the upper surface of the receptacle. Imbed in pith and make vertical sections through the central part of the receptacle. Under high power find the antheridia in their somewhat ovoidal cavities. Draw. Near the antheridia one-celled, hair-like paraphyses may be found in specimens that are not too mature. In the case of mature antheridia, antherozoids may be seen in the cells or swimming in the water. This observation is difficult; the antherozoids may, perhaps, be obtained by placing a drop of water on the top of an antheridium the upper part of which has been kept free from wetting for several days; after a few minutes transfer the drop of water to a slide by inverting the antheridium on the slide. It is to be remembered that motile antherozoids can be found only at the seasons of the year when the plants are at the right degree of maturity.

Compare the upper and lower surfaces of the male receptacle with the corresponding surfaces of the thallus.

6. Study the structure of the archegonial branch. With a magnifying glass examine the grooves on the under side of the receptacle. Imbed a receptacle in pith, make vertical sections, and examine with high power for archegonia. These are shaped something like a flask with a long neck. The archegonia may also be obtained for examination by scraping out the contents of one of the grooves into a drop of water. Draw an archegonium, showing clearly its stalk, body, and neck. Try to make out the internal structure of an archegonium, studying as many specimens of different stages of development as can be found. Crush under the cover-glass some of the fully matured archegonia; study the spores and elaters. The latter are marked by delicate spiral bands. Draw both. Crush a ripe archegonium on a glass slip without moisture. Examine under high power, and while looking through the microscope let some one breathe gently on the mass. What happens to the elaters?

What mechanical purpose may the elaters serve in the distribution of the spores?

Class II. **The Musci.**—The lichens, liverworts, and mosses are popularly but incorrectly spoken of as mosses. The true mosses are distinctly higher in the complexity of their structure than the lichens and liverworts. The axis of growth is more erect; the plant is provided with truer leaves, with rhizoids that closely approach true roots in character, and shows a greater differentiation in the tissues of the stem. The cells on the outside of the stem are elongated, are of a red brown color, are thick-walled, and approach the structure of bark more nearly than any tissues hitherto studied, though the epidermis is very imperfectly developed. Again the cells in the centre of the stem are thin-walled, and are aggregated into a distinct axial bundle, which simulates in function, and to some extent in structure, the fibro-vascular bundles of all the higher plants. The growth of the stem is by the division of an apical cell, which grows concealed in the leaves. This cell has the shape of a triangular pyramid with the apex pointing down. In dividing, a slice splits off from one of the sides of the pyramid; then a slice splits off from a second side; then one from the third side, the pyramid growing to its original size before each fission. Each of the slices divides into many cells, which develop into the tissues of the stem, leaves, and rhizoids.

Mosses are reproduced asexually by different modes of budding, but not, so far as is known, by asexual spores. In the sexual reproduction mosses are either monœcious or dicœcious. Antherozoids swim to and fertilize the egg-cells produced in archegonia growing on the same or on another plant. The capsules containing the egg-cells develop and become filled with spores that closely resemble the asexual spores of some other plants. The spore, in germinating, produces a branching filament known as a *protonema*, which gives off lateral buds from which new moss plants grow.

POLYTRICHUM COMMUNE—PRACTICAL STUDIES.

Polytrichum commune, or *Hairy-cap Moss*, is one of the largest and most common of the mosses. It grows in abundance

in dark green patches in the woods, fields, and along the roadsides. The plants are from three to six inches tall. The stems are usually simple, but sometimes are forked. The leaves are from half to two thirds of an inch long.

1. With the naked eye examine some plants of *Polytrichum commune*. Find male or antheridial plants, recognized by a star-like cluster at the top. These clusters develop in the spring, but remain conspicuous throughout the season. Some male branches show two clusters. After the formation of the lower cluster, the apical bud continued to develop and formed a second cluster. This is known as *prolification*. Find an instance of it.

Find a female or archegonial branch. In the spring the archegonium is concealed among the leaves of a stem that is more pointed than the male stem. After fertilization the female stem sends up a long, slender, red shoot or seta which bears at its top a capsule. A calyptra, or cap, with pointed apex, envelops the capsule with long silky hairs.

Find also sterile branches. These are recognized by their pointed tops and the lack of the characteristics already described for the male and the female branches. Note the position and arrangements of the leaves and rhizoids on each of the three kinds of branches. Draw each.

2. Imbed in pith, celloidin, or paraffin pieces of the root-end of the stem and cut cross-sections. Study the structure under both low and high power. Notice the imperfectly differentiated epidermis, the cells with thickened wall next within the epidermis, and the somewhat distinct bundle of thin-walled cells — the axial bundle — in the centre. Describe the rhizoids as seen on the section. Draw the entire section. Run Schultze's solution under the cover-glass. This solution stains lignified cellulose yellow. Do you find both normal cellulose and lignified cellular tissue?

Mount some of the rhizoids in water and examine under low power. State how the cells are arranged. Do the rhizoids branch? Draw a rhizoid.

3. Examine a leaf under low power. Draw the entire leaf. Do you find a midrib? Notice the teeth or spines on the mar-

gin,—forms of plant hairs. Under the high power, draw one of the teeth and a few of the adjacent cells. If dried material is used, the leaves should be soaked in dilute caustic potash for twenty-four hours previous to this observation to render them transparent. Boiling the leaves in Schultze's macerating mixture serves the same purpose. Also draw, under high power, a few cells from the wide, base portion of the leaf. Have you found stomata? Examine pieces of the epidermis torn from the stem for stomata. Do you find them? Stomata are sometimes found on the midribs of the leaves and on the setae.

Under low power draw one of the leaves or bracts from an antheridial head. Draw a few cells of the bract as seen under high power.

Examine under low power cross-sections of the leaf. The sections are best cut from pieces of the upper, leafy portion of the stem imbedded in celloidin. Some of the sections of the leaves will be nearly or quite transverse. Locate the axial bundle of the midrib. Notice the lamellae on the upper surface. Draw the entire section. Also draw some of the lamellae as seen under high power.

4. If material gathered in the spring can be studied, dissect a male head in water and try to make out, using both low and high powers, the antheridia—somewhat thick, ovoidal bodies made up of polygonal cells—and filiform and spatulate paraphyses. Draw. If fresh material is employed, crush the antheridia by pressure on the cover-glass, and try to see the flagellated antherozoids. This is difficult. The antheridia and paraphyses may also be studied in vertical sections cut from a male head imbedded in celloidin.

5. Study the female head in material collected in the spring; fresh material is to be preferred. Tease out a head in a drop of water and find flask-shaped archegonia with short foot-stalks and long, slightly curved necks. Draw. Focus into the neck and make out the canal leading from its top down to the oösphere or egg-cell in the central portion of the archegonium.

6. Study the matured fruit. After the oösphere is fertilized, it is raised on a long slender stalk or seta. Draw a capsule with the calyptra still on and one from which it has been re-

moved. Remove the operculum or lid and draw it as seen from above. Beneath the operculum, the mouth of the sporangium, or urn, is covered with a delicate diaphragm surrounded by a peristome or fringe of teeth. With a razor cut off the diaphragm and peristome, place them top side up on a dry slide, and, while examining under low power, let some one breathe gently on them. The fringe of teeth is hygrometric, i. e., when moisture touches it, it executes movements. These motions are believed to be a means for scattering the spores from the urn. Draw the diaphragm and peristome as seen from above.

Mount some of the spores from a mature capsule. Draw under high power.

VII

THE PTERIDOPHYTES

The plants of this sub-division approach the common flowering plants in their structure much more nearly than any thus far considered. There is a marked differentiation of tissues. True vascular bundles give support to the aerial stalks and serve to convey the fluids for the nourishment of the plant. A slight tendency to the formation of these differentiated structures has already been noted in the case of the stems of mosses, but no true vessels are formed in them. From this fact, that their structure is wholly cellular, the plants of the preceding sub-divisions are called cellular cryptogams. Because of the possession of woody bundles, and because one method of reproduction is by spores and not by seeds, the Pteridophytes are called vascular cryptogams. In the ferns and their allies, fully developed fibro-vascular bundles, made up largely of spiral and scalariform vessels and sieve tubes, are found. Here too, for the first time, a distinct, well differentiated epidermis occurs, with stomata, or breathing pores, resembling those of the higher plants.

In size there is also much advance, for some of the ferns in tropical climates reach the size of trees. In the arrangement of the wood there is, however, a marked difference from the arrangements in both monocotyledonous and dicotyledonous plants of the highest branch. This is especially noticeable in the shapes and positions of the fibro-vascular bundles as seen in transverse sections of the stems. There are also marked differences in the modes of reproduction from both the lower and the higher plants.

When the spores of the Pteridophytes germinate, there is first formed a protonema which develops into a small thalloid leaf called the prothallium. This is usually less than half an inch in diameter. These prothallia may be obtained for study from the damp flower pots, walls, or soil of greenhouses in which ferns are cultivated, or they may be grown by sowing the fern spores on moist soil, kept protected by a bell-glass, and exposed to

suitable conditions of light, heat, and moisture. It requires from six to ten weeks to grow the prothallia from the spores.

If the under side of one of these heart-shaped prothallia be examined under the microscope, special differentiations of the cells will be found near the sinus of the heart; these are the *archegonia* or *pistillidia;* they are rounded aggregations of cells, with a large centrally situated cell that divides into two. Of these two cells, the lower develops into the egg-cell or oösphere; the upper develops into a tube which becomes filled with a mucilaginous substance that is afterwards discharged, leaving the passage to the oösphere open.

More distant from the sinus of the prothallium are the *antheridia*, situated among the root hairs. In these spirally coiled antherozoids are developed, being finally discharged by the rupture of the cell-wall. Accompanying each antherozoid is a small cell, the use of which is not understood. Each antherozoid is provided with cilia, by means of which it swims about when the prothallium is wet. It may in this way pass to other prothallia where, by fertilizing the oösphere, a hybrid variety is produced. If the antherozoids come in contact with the mucilage around the mouth of an archegonium, the mucilage aids in directing them into the tubular neck leading to the oösphere. By the fertilization of the oösphere a new plant is produced. This plant in turn produces spores. The life history, as just detailed, is believed to be practically the same in all Pteridophytes, though it has not been fully observed in all the species.

The classification of the Pteridophytes is based mainly on the manner in which the spores are produced. There are two groups:

Group I. The Isosporous Vascular Cryptogams.
Group II. The Heterosporous Vascular Cryptogams.

The first group has four classes; the second, two.

Class I. **The Equisetaceae.**—There is now only one genus in this class. In the carboniferous age of the world's history there were many genera, as is evidenced by the remains found in the coal formations.

The stem of equisetum is subterranean. From it hollow ver-

tical shoots rise; some sterile, bearing only leaves and branches; others bearing sporangia, which are located on the inner sides of scales grouped together into cone-shaped tips of the shoots. The ripe spore-cases open on the inner side. The spores are greenish in color; each has four threads, or elaters, with knob-shaped ends, which are wound round the spore when moist, but are extended when dry; in other words they are hygrometric. These threads undoubtedly help in the transportation of the spore. These spores are of great interest under the microscope. The moisture of the breath upon them when dry causes the elaters to fold up. When the moisture evaporates, they again extend themselves.

The cylindrical shoots are hollow, the woody tissues being arranged in a single circle of fibro-vascular bundles. The epidermis contains silica to such an extent that it may be boiled for some time in strong nitric acid without losing its shape. All the organic matter is thus removed, and the skeleton of the stem remains in pure silica,—a most beautiful object when seen under polarized light. It not only shows the general structure of the epidermis, but preserves the stomata with their guard cells.

The small leaves are arranged in whorls, and, in the branching species, the branches are in whorls.

Class II. **The Ophioglossaceae.**—The Ophioglossaceae, or *Adder-Tongues*, differ from other members of the branch in that the leaves are not circinate in the bud, but are straight or folded, and in their spore-cases which are without rings. They are represented in this country by the adder-tongues and the moonworts, *Botrychium*.

Class III. **The Filices.**—Ferns are distinguished at once from the other members of this branch by the luxuriance of their leaves. The stem, or rhizome, is underground and develops by the formation of a new bud at one end each year, while it dies away at the older end so as about to keep pace with the new growth. In the spring the young fronds may be seen unrolling themselves, for they are coiled up, or circinate, in the bud. Ferns vary in height from an inch up to many feet, the larger ones, in tropical climates, often raising the

rhizome out of the ground to form the trunk of a tree with a tuft of fronds at its top.

On account of the delicate beauty of their fronds, ferns offer a very attractive field for study. It is estimated that there are from 3,000 to 4,000 species in all the world. They flourish most abundantly in the torrid zone, decreasing in number and size as one passes from the equator towards the poles. Only 26 species are known to grow within the limits of the Arctic zone, and only 67 species are recorded for the whole of Europe. For North America, Underwood describes 158 species in "Our Native Ferns and Their Allies." No single locality furnishes a very large number of species.

The *Filices* include the *True Ferns* (by far the largest number) and the *Marattiaceae*, or *Ringless Ferns*, which are exotic and found only in greenhouses.

THE EAGLE FERN.—PRACTICAL STUDIES.

The Eagle-Fern, *Pteris aquilina*, or *Brake Fern*, is probably the most widely distributed of all the ferns. It grows in all climates from the torrid zone to the Arctic circle. It is known to thrive as high as 9,000 feet above the sea level. In some tropical countries it is said to reach a height of twelve to fourteen feet. In New England it varies in height from a few inches in dry barren localities to three to five feet in rich-soiled moist places. Under favorable conditions it grows in such abundance as to form *brakes* or thickets, whence the common name.

This fern is easily recognized from the fact that the frond appears to be triply divided. An examination of the frond shows that this is in appearance only, for the two lower branches differ from the pairs above only in size and in being set somewhat forward on the leaf stalk. Specimens for examination should include as much of the underground portions as can be obtained, for it is to be remembered that the stem is an underground rootstock or rhizome and that what is apparently an aerial stem is really the petiole or stipe of the leaf. Care should be taken to injure the rhizome as little as possible in removing it from the ground.

1. With the naked eye make an examination of an entire plant. What is the color of the rhizome? Notice the lateral ridges. Does the rhizome branch? How many leaf-stalks grow on a branch? Where on the rhizomes are the leaf-stalks borne? Do you find remains of the leaves of previous years still attached to the rhizome? Notice the apical bud at the end of the rhizome. If the specimen was dug up in the spring, the apical bud is from half to three fourths of an inch from the

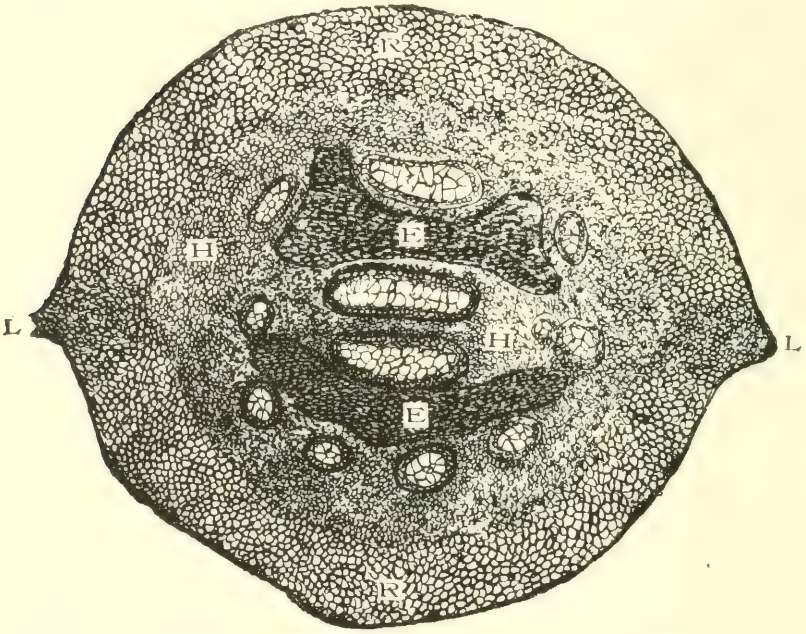


FIG. 37. Transverse section through the rhizome of *Pteris aquilina*: L, L, lateral ridges; R, R, sclerotic parenchyma, or hypodermis; H, H, fundamental parenchyma; E, E, sclerotic prosenchyma. Two large fibro-vascular bundles are seen near the centre, and nine others are arranged in a circle. (Original.)

base of the season's stipe; later in the season, this bud will have grown into an upright rudimentary stipe which will develop the following season, and a new apical bud will have formed at the end of a new growth of the rhizome. It is thus seen that

the rhizome increases in length each season only half or three fourths of an inch. Notice the roots. Here true roots are first met in ascending the scale of plant life. The rhizoids of all the lower plants have been single cells or unbranched linear aggregates of cells. The roots of ferns are solid aggregates; they have an epidermis, and are made up of systems of tissues closely resembling the tissues of the stem. Notice that the roots branch. Do you find hairs on the roots? With a sharp knife make a transverse section of the rhizome. What is the color of the ground tissue,—the fundamental parenchyma? Notice the brownish tissue surrounding the rhizome just inside the epidermis: it is composed of lignified cellulose and is known as sclerotic parenchyma or sclerenchyma. Notice two well-defined, almost black, areas farther within the stem; they are made up of very hard, strongly lignified cellulose and are known as sclerotic prosenchyma. Around and between these areas the fibro-vascular bundles can be faintly seen by the naked eye as more or less oval areas of tissues slightly darker than the fundamental parenchyma. Draw the section.

Notice that the stipe is small near the origin on the rhizome, enlarges considerably as it approaches the surface of the ground, and diminishes gradually as it rises above the surface. Of what advantage to the plant is the enlargement? Cut a cross-section of the stipe. Draw it. Notice the appearance of the tissues in the section. An imagined resemblance of these tissues to an eagle with outspread wings was the origin of the name eagle-fern. All above the lowest branches of the stipe is known as the lamina or leaf. The leaf is pinnately and bipinnately divided. Find, if possible, a fruiting frond. The sporangia are borne around the margin of the under side of the frond, protected by an *indusium* formed by the folding over of the edge of the leaf.

Draw a plant of pteris showing distinctly all its different parts.

2. Examine a longitudinal horizontal section of an apical bud cut in the plane of the lateral ridges from a specimen embedded in celloidin. Find the apical cell in the hollow at the end; as seen in section it is a triangle with rounded base. This cell divides by the splitting off of cells first from one side, then from

the other side. These cells are known as segmental cells; they divide and subdivide to form new cells. Every cell in the rhizome has originated through the segmental cells from the apical cell. It requires care and skill to secure sections showing the apical cell.

The cells which extend for a short distance within and around the segmental cell are thin-walled and make up an actively growing tissue known as the apical meristem. As this tissue continues to grow, its cells become differently differentiated and develop into the various tissues of the rhizome.

Examine a vertical longitudinal section of an apical bud. The apical cell, if included in the section, will be seen to be polygonal in shape. This section will serve well for a study of the different tissues that have resulted from the differentiation of the cells of the apical meristem. Starting from the centrally situated ground parenchyma, and passing either to the top or the bottom of the rhizome, make out the following succession of tissues:

(*a*.) A fibro-vascular bundle. The row of cells which separates this from the ground parenchyma is known as the bundle sheath. Then come sieve tubes with the surfaces marked by irregular areas of perforations. Next are wide scalariform vessels with distinct markings somewhat resembling the rungs of a ladder. In the centre of the bundle are spiral vessels, *i. e.*, vessels with the cell-wall strengthened by a band of cellulose running spirally around on the inside. These will not be seen, of course, unless the section passes through the centre of the bundle. Outside the spiral vessels the order is reversed, and scalariform vessels, sieve-tubes, and bundle sheath are again seen.

(*b*.) Next outside the fibro-vascular bundle is another region of ground parenchyma. Following this is a region of the thick-walled cells of the sclerenchyma. Then more ground parenchyma which may happen to include another fibro-vascular bundle. Then come the thick-walled cells of the hypodermis. Last lies the single row of cells of the epidermis. Draw the section and indicate by letters all the tissues you have been able to make out.

3. Boil an apical bud in Schultze's macerating mixture a few minutes, dissect it with needles, and make a careful study of the

scalariform and spiral vessels and sieve-tubes of the fibro-vascular bundles, and of the cells of the sclerenchyma which are thick-walled, pitted, and pointed at both ends.

Treat a portion of an older part of the rhizome with Schultze's macerating mixture and make similar studies of its tissues.

The various vessels of the fibro-vascular bundles and the elongated cells of the sclerenchyma have been built up by the breaking away of the end-walls and the fusion of a number of cells into one. The markings on their walls result from strengthening deposits of cellulose. The spiral and scalariform vessels which occupy the centre of each bundle make up the xylem or wood of the bundle. These vessels are filled only with air. It is believed that the water containing dissolved nutrient material from the soil finds passage to the upper portions of the plant through the walls of these vessels. The sieve-tubes and similar vessels completely encase the xylem; they are known as the phloem or bark of the bundle. Descending currents of nutrient material elaborated in the leaves find passage in the phloem to all portions of the plant that do not contain chlorophyl. The fibro-vascular bundles form continuous conduits from the smallest rootlets up through the rhizome and stipe, and send their branches into the divisions and sub-divisions of the leaves. Externally they may be traced as the ribs and veins of the leaves. The possession of the fibro-vascular bundles forms, as already stated, a marked line of separation between the cellular plants of the lower sub-divisions and the vascular plants of the Pteridophytes and the higher flowering plants.

4. Examine under low power a cross-section of the rhizome. Draw the section and locate by letters the epidermis, hypodermal tissue, ground parenchyma, sclerenchyma, bundle-sheath, scalariform and spiral vessels, and intercellular spaces.

Treat a section with Schultze's solution. Draw, and locate by letters the portions containing lignified cellular tissue.

Treat a section with iodine solution. What tissues contain starch? These tissues serve as store-houses for the reserve food of the plant. Stain a section, cut after imbedding in paraffin, in picro-carmine for twenty-four hours; wash out the carmine and stain with methyl green for fifteen minutes. Wash

out excess of green in alcohol, clear in oil of cedar, and mount in Canada balsam as a permanent preparation.

5. Treat pieces of the stipe with Schultze's macerating mixture, dissect, and find and name as many tissues as you can.

6. Tear off a bit of the epidermis of the under side of the leaf, taking care to secure some from over the veins and some from between the veins. Sketch some of each of the different kinds of cells you find, lettering the sketch to show where each kind of cell is located. Notice the stomata, each enclosed by two guard cells. The stomata are the breathing pores of the leaf. Affected by variations in moisture and light, the guard-cells change their form and open or close the entrance, thus regulating the admission of oxygen and carbon dioxide to some extent, and controlling the evaporation of the water according to the necessities of the plant. Do you find nuclei in the guard-cells? Do you find chlorophyl-bodies in them? Do you find nuclei and chlorophyl-bodies in the epidermal cells?

Examine a piece of the epidermis torn from the upper side of the leaf. Draw a few cells. State how it differs from the epidermis of the lower side.

7. Hold pieces of the leaf between pieces of pith, and cut cross-sections. Draw a portion of a section showing a fibro-vascular bundle. Beginning on the upper side, notice the epidermis—a single row of cells; under these, green cells standing perpendicularly to the epidermis,—columnar parenchyma; then other similar green cells irregularly arranged and having intercellular spaces between them; on the lower side of the leaf a single row of cells forming the epidermis. Find sections through stomata in the lower epidermis and notice that each stoma opens into a large intercellular space or breathing chamber. The chlorophyl-bearing cells of the interior of the leaf are called *mesophyll*. Do they contain starch?

8. Examine the sporangia. These may be obtained by dissecting off the indusium and scraping the sporangia from the margin of the leaf. A sporangium closely resembles an interrogation point (?) in shape. Notice the pedicel or stalk, the annulus of thick-walled cells which extends from the top of the pedicel up one side and over the top of the sporangium, and the

thin-walled cells enclosing the body of the sporangium. Draw. When the sporangium is ripe, the thick-walled cells of the annulus become dry and contract; this causes the thin-walled cells of the opposite side to break apart and scatter out the spores.

Imbed pieces of a fruiting frond between pieces of pith and cut cross-sections. Study the sporangia *in situ* in these sections. Observe the position of the indusium. Distinguish between the outer indusium formed by the folding over of the edge of the leaf, and the inner or true indusium, formed by an extension of the epidermis of the under side of the leaf. Draw.

If fruiting fronds of pteris are not easily obtainable, substitute the sporangia of some other fern; for example, one of the shield ferns.

9. Examine the spores. What is their shape? What is the character of their covering? Crush some of the spores by pressure on the cover-glass. Treat with Schultze's solution. Of what is the covering or exospore composed? Treat another mount of crushed spores with iodine solution. Do they contain starch? Do you find a nucleus?

10. Study the protonemae. These are easily cultivated as follows: Sow the fern spores on a fresh moist sod placed in the bottom of a glass jar; also on the moist sides of the jar, and on a sheet of glass to be used as a cover to the jar. As fern spores usually require a period of rest before they will germinate, use spores of the previous year. Keep this moist chamber under suitable conditions of heat and moisture, but not in too strong sunlight. The spores will begin to germinate in about a week, and the progress of the growth may be watched by making examinations at intervals of a few days. Draw specimens showing successive stages of development. Notice that the growth begins by the bursting of the spore-covering. Notice that a rhizoid begins to form simultaneously with the first division of the spore contents, and that other rhizoids are formed later. Do the cells of the protonema contain nuclei? Do they contain chromatophores? Starch? Find protonemae that show at the distal end a triangular apical cell resembling the apical cell of the apical bud; it may not be easy to do this.

Notice that the cells of the protonema are at first arranged to form a linear aggregate; this arrangement is succeeded by a superficial aggregate; and this by a solid aggregate. In passing through these stages the protonema is gradually transformed into the prothallium.

11. If the cultivation of number 10 has not produced prothallia in from six to ten weeks, search for them on the fern pots, the ground, and walls of green-houses where ferns are cultivated. They are very small—one eighth to one third of an inch in diameter.

Under low power draw the prothallium as seen from above and again as seen from the under side. Notice the distinct heart shape. Does this recall the dichotomous division of liverworts? Do you find rhizoids? If so, where are they situated? Why are they not true roots? Under high power examine some of the cells near the margin of the prothallium. Do they contain chromatophores? Nuclei? Starch? In testing for starch use prothallia that have been kept in alcohol.

With the high power search the region just below the sinus of the heart on the under side of the prothallium for archegonia. They are borne on a thickened region of meristematic tissue called the cushion. What is their shape? Of how many cells does each consist? Can you find the canal or opening into the archegonium? Draw.

Search among the rhizoids for spherical antheridia. Draw. It is possible that antherozoids will be found swimming in the water. These are spirally coiled organisms having a number of cilia at the small end; a spherical body is often seen attached to the larger end. The antherozoids swim to the canal of the archegonium, effect an entrance, and fertilize the egg-cell. The egg-cell now develops by successive cell-divisions and produces a new fern-plant with rhizome, roots, and frond. The new plant remains attached to the prothallium for a time, but finally becomes separated and lives as an independent plant.

Class IV. **The Lycopodiaceae or the Club-Mosses.**—These are principally perennial plants with creeping stems. Some of them resemble in the character of their leaves different species of conifers so closely that they have the common names of ground

pine, running pine, ground cedar, and ground fir. The resemblance is still further carried out in the cone-like spikes that some species bear on upright branches. These spikes are made up of scale-like leaves, each bearing on the inner side near the base a somewhat kidney-shaped spore-case which, when ripe, opens transversely near the upper part and discharges quantities of fine sulphur-colored spores, all of one kind. The first stage

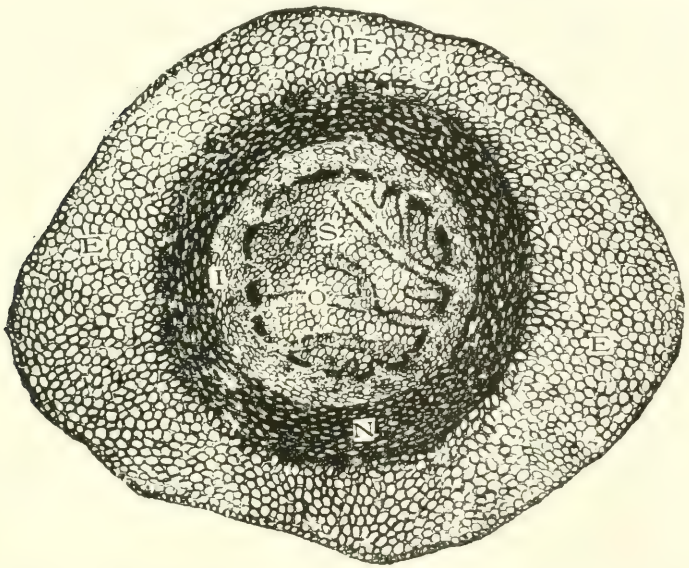


FIG. 38. Transverse section of stem of *Lycopodium complanatum*: E, E, E, cortex; N, sclerenchyma; I, vascular-bundle sheath; S, phloem portion, O, xylem portion of the central fibro-vascular bundle. (Original.)

of the development of the club-mosses from the spores is little understood, as the prothallia have been seen and studied in only a few species. The spores contain a large amount of oil, so that they are very inflammable. They have been extensively used, under the name of lycopodium powder, to produce flash lights.

There are about 100 species in all the world, the larger number growing in the tropics. About eleven species grow within the limits of the United States, the most common ones with us being

Lycopodium dendroideum or ground-pine, *L. clavatum* or running pine, and *L. complanatum*, sometimes spoken of as ground fir or ground cedar.

The plants of this order, while somewhat resembling the mosses in outward appearance, differ from them in the character of their fructification and in their higher organization. The stems show centrally situated, well defined fibro-vascular bundles which may be traced into the leaves. In these two particulars they clearly resemble the ferns with which they are classed as allies. The name of the order is from two Greek words meaning wolf-foot, though the reason is not apparent why this name should be given to these plants.

Class V. **The Selaginellaceae or Little Club-Mosses.**—This class contains about 335 species, mostly tropical; seven are native to the United States. Many of the tropical species are cultivated in greenhouses for their delicate and beautiful foliage. In outward appearance the little club-mosses resemble the club-mosses, except that they are much smaller. The characteristic that distinguishes them is the production of two kinds of spores, macrospores, usually four in number, and microspores, of indefinite number.

Here also are included the **Isoëteae or the Quillworts.** The scientific name is from two Greek words meaning equal and year; it is appropriate as these plants remain the same throughout the whole year. The common name is also appropriate because of the resemblance of the leaves to quills. There are about 50 species in the order; sixteen occur in the United States. Five of these sixteen species grow submerged in water; five grow in places where they are wholly out of water in the dry season; the others grow partly in and partly out of water. The leaves grow in bunches from a sort of bulb, varying in number from 10 to 100 and in length from 2 to 20 inches.

Class VI. **The Rhizocarpeae.**—Of these only one species occurs in New England, namely, *Marsilia quadrifolia*, a small plant with four-lobed leaves somewhat resembling clover leaves. It grows on the margins of lakes and sluggish streams.

VIII

THE SPERMAPHYTES

The eighth sub-division includes the higher and so-called flowering plants. They vary in size from plants a small fraction of an inch in height up to the mightiest trees. They are, in general, plants of a highly differentiated and complex structure. The feature that distinguishes them from the plants of the seven preceding sub-divisions is the production of true seeds, which are the result of the fertilization of an embryo-cell by the receipt of the contents of a pollen-cell. The embryo-cell is borne in a pistil, and the pistil or pistils of a flower are known as the *gynoecium*; the stamens with their pollen-bearing anthers constitute the *androecium*. According as the embryo-cells or ovules are exposed to the direct action of the pollen grains or are borne in closed ovaries, the Spermaphytes are divided into two classes:

Class I. The Gymnosperms.
Class II. The Angiosperms.

Class I. **The Gymnosperms.**—In these the ovules are borne on the lower part of the inner surface of modified leaves which form a cone or female flower; the pollen is also borne on modified leaves forming a small cone or male flower. At the season of fertilization the ovules are exposed to the air, the pollen falls directly upon them, and they are fertilized by the passing of the contents of the pollen-grains into the ovules through tubes which develop from the inner coat of the pollen-grains. The leaves of the cone then close, remain closed during the development, and open at maturity to discharge the seed. The gymnosperms include the cycads, which are native in hot climates; the conifers, which include the pines and related trees and which are native in temperate and cold climates; and the joint-firs, which are native in hot climates.

THE PINES.—PRACTICAL STUDIES.

1. Examine any pine tree as it grows. Is the stem excurrent, *i. e.*, does it rise as a central main shaft, or is it deliquescent,

i. e., does it divide and subdivide into branches? Are the branches arranged in any particular way on the stem? If so, state what the arrangement is. Examine the apical bud at the end of each branch; also around its base several lateral buds. The apical bud develops into the shoot of the next season; the lateral buds develop into the new branches. Starting with the top of a young pine, can you tell how much is this season's growth? Can you trace the growth of the different years down the stem? Cut across the stem where it is at least half an inch in diameter. Count the number of rings of annual growth. How does this number compare with the age as determined by tracing the growth of the different years down the stem? Notice the color of the bark. Is the bark on the stem and also on the branches smooth or rough? Observe the scale leaves on the branches. Notice that the foliage leaves are produced on short dwarf branches. Describe the surface of the dwarf branches. How many leaves grow on a branch? Notice the sheath at the base of the leaves. Examine different pine trees. Is the number of leaves on a dwarf branch the same in the different species? Identify the species studied by consulting Gray's Manual.

2. Dig up some very young pines,—those of the present season's production, for instance. Is there a central tap-root, or is the main root lost by division into branches? Compare with the root of a tree three or four years old. Describe the mode of branching. Notice and describe the rootlets. Draw enough to give a good idea of the gross morphology of the root.

3. Study the male flowers. These are to be obtained only in the spring. They mature in May or June. Alcoholic material may be used for the observations. The male flowers may be obtained from various species, but are most surely to be found on the Scotch pine, the Austrian pine, and the red or Norway pine, descriptions of which are given in various botanies. The male flowers are borne as small yellow cones at the base of the shoot of the new season's growth. Are these cones sessile or are they borne on stalks? Draw an entire cone. Is there any definite arrangement of the modified leaves which compose the

cone? Are these leaves—the stamens—sessile or borne on stalks? Remove some of the stamens and examine them for the pollen-sacs. On which surface of the stamens, and where on the surface are the pollen-sacs borne? What is the shape of the pollen-sacs? Find mature specimens. How do the pollen-sacs open? Draw, showing an entire stamen. Examine under high power some of the pollen-grains. Draw. Apply reagents, if necessary, and determine whether there is a nucleus and nucleolus. Is starch present? Is oil present? If starch and oil are present, are they evenly distributed in all parts of the grain? Make out two coats in the cell-wall. Prove that the outer is composed of lignified cellulose and the inner of normal cellulose. When the pollen-grain develops in contact with the ovule, the inner coat grows into the tube which penetrates the micropyle of the ovule.

4. Study the female flowers. These are borne at the very tip of the new shoot as pinkish green cones. They are to be gathered in June. Are these cones sessile, or borne on stalks? Draw a cone. Dissect a cone to pieces. Notice that the modified leaves are of two kinds. The thin and small scale-leaf or bract corresponds to an ordinary leaf; the thicker scale or carpel bears ovules. Draw a bract. Where on the carpel are the ovules situated? Draw a carpel showing the ovules. The ridge-like projection of the carpel is called the keel; its function is to guide the pollen-grains towards the ovules.

5. Study the development of the ovule into the seed. Two years are required for this. Branches of Scotch, Austrian, or red pine may be found in the early part of the summer bearing the cones at three stages of development: *a*. The female flowers, already studied, at the apex of the new shoot. *b*. Cones one year old at the apex of the shoot of the preceding year. *c*. Cones in the second year of their growth at the apex of the two years old shoot.

What is the position of the ovules on the carpels of the youngest cone? Find on each ovule the micropyle—a small opening into the interior through which the pollen-tube enters. Where on the ovule is it situated? Make a section of an ovule through the mycropyle; with a hand magnifier or low power

distinguish the *integument* or outer coat; next within the integument is the *nucellus*, composed of parenchyma; near the end of this mass of parenchyma farthest away from the micropyle is situated the *embryo-sac*, which is a large cell containing more or less of a very soft tissue—the *endosperm*. Draw.

Dissect a year old cone. Make a section of a seed through the micropyle. Compare the micropyle, integument, embryo-sac and its contents with the same parts in the youngest cone. Draw.

Obtain the ripe or nearly ripe seeds from a two years old cone. Notice the wings and the markings on the surface of the seed. Of what use are the wings? Make a section of a seed through the micropyle and compare with the observations made on the first and second year cones. The integument has thickened greatly and now consists of two coats: the nucellus has almost disappeared; the endosperm has increased in amount and in firmness because of the accumulated food supply for the new plant. Macerate the endosperm in caustic potash and dissect it with needles. Make out the embryo, and in it a number of cotyledons and a radicle.

6. Make thin longitudinal sections of an apical bud—that is, the winter bud from which the next year's new shoot will develop—which has been preserved in alcohol. Mount in Schultze's solution all of the sections that are cut through or nearly through the apex. Examine under both low and high powers. Notice the thin-walled cells abundantly supplied with protoplasm at the apex. In the acrogenously growing plants of the lower sub-divisions up to the Lycopods, the growth in length originates in the division of an apical cell. In the phanerogams the thin-walled cells near the apex of the stem are capable of division. From their division arises the growth of the plant in length. The apex of the stem is, therefore, called the *growing apex* or the *punctum vegetationis*. The newly formed tissue at and near the apex is the *primary meristem*. Trace the differentiation of these cells as far back as your section permits. Do you find tracheïdes and spiral vessels?

7. Study the foliage leaves. Measure a number of leaves on each of two or three species of pine. State the average length

for each species examined. What is the shape of the end? Notice rows of dots—the stomata—running lengthwise the leaves. With a sharp razor cut off a thin slice of the epidermis, mount in water, and examine the stomata under high power. Run the finger over the edges of the leaves. What is noted? Cut cross-sections of the leaves of different species. What is

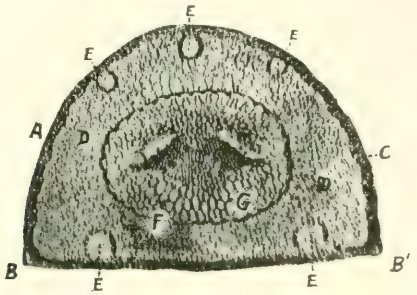


FIG. 39. Leaf of red pine, *Pinus resinosa*. Transverse section. A, epidermis; B, B, enlarged corner cells; C, hypoderma; D, D, mesophyll; E, resin ducts; F, bundle sheath; G, colorless parenchyma.

the shape of the cross-section in each case? Examine with a magnifying glass and draw, showing all you see. Measure or estimate the greatest diameter of the leaves.

Study Fig. 39, which is a picture of a thin cross-section of the leaf of the red pine, *Pinus resinosa*, or Norway pine. Around the outside is a single layer of cells with thick walls, A, the epidermis. This covering of thickened tissue protects the softer interior of the leaf. At the corners, B and B, are large cells whose irregularity causes the roughness of the edges. Just within the epidermis is another narrow band of thick-walled cells—the hypoderma, C. Within this is a broad band of delicate parenchyma with folded cell-walls, D, D. This is the mesophyll. When the leaf was living these cells were filled with protoplasm bearing green chlorophyl-bodies. Situated in the mesophyll are five large resin ducts, E, each surrounded by a row of glandular cells which secreted the resin. Next within is an elliptical ring of oval cells, F, the endodermis, or bundle-sheath. The bundle-sheath encloses thin-walled parenchyma, G, which

did not contain chlorophyl, and two fibro-vascular bundles. Each fibro-vascular bundle consists of two parts. The woody part or xylem is situated towards the flat or upper side of the leaf. The bark portion, or phloem, is situated towards the lower, or outer, rounded side of the leaf.

Mount in Schultze's solution thin cross-sections of leaves of different species of pine, cut after imbedding in paraffin or celloidin. Comparing with Fig. 39, locate on a drawing of the section all the parts mentioned above. The whole section should be drawn in outline, but it will be sufficient if the details are filled in in only half of it. In what portions of the section is the cellulose lignified? Notice under high power that the epidermis is composed of three layers; the cuticle is the outer thin and transparent coating; the other two coatings are thick-walled. Can you make out cracks running from the centres of the cells outward through these walls? Find places where the section passes through a stoma; observe the guard cells, somewhat below the surface, and the air-chamber into which the stoma opens.

Trace the hypoderma around the section. Is the number of rows of cells of which it is composed constant? How many rows do you find? Observe the hypoderma beneath a stoma; what do you notice?

Tie a number of fresh leaves together with thread tightly. Imbed the bundle in pith and cut cross-sections. Mount in water and examine the mesophyll. Observe the abundant chlorophyl. Determine if it bears starch. Notice the folded walls of the cells.

Observe the thin-walled parenchyma within the bundle-sheath. Does it bear chlorophyl and starch? What is the prevailing shape of the cells as seen in cross-section?

Draw under high power the xylem and phloem as seen in the section which was mounted in Schultze's solution. Also draw a portion of the bundle-sheath. What do you find to be the contents of the cells of the bundle-sheath in a section from a fresh leaf?

8. Study Fig. 40, which is a cross-section of the stem of the Northern Pitch Pine, *Pinus rigida*, cut in July of the second

year of its growth. On the upper side of the picture is the epidermis, A, which is smooth in the young branches, but becomes covered at a later period with brown scales that result from the

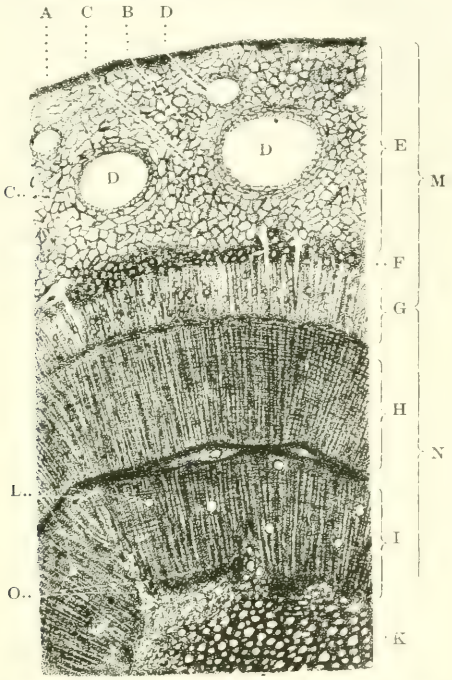


FIG. 40. Northern Pitch Pine, *Pinus rigida*. Transverse section of stem in the second year of growth. A, epidermis; B, cork layer; C, cortical parenchyma; D, resin ducts; F, phloem; G, cambium layer; H, wood in process of formation in the second year; I, wood formed during the first year; L, resin ducts; O, the origin of new branches.

dying of the earlier bark. Within the epidermis is a broad band, E, which includes two or three rows of rectangular (as seen in section) cells of the cork layer, B; the cortical parenchyma, C, which makes up the greater part of the band; and resin ducts, D, each surrounded by layers of epithelial or glandular cells whose function is to secrete the resin or pitch. On the inner side, the cells of the cortical layer pass into the cells of the irregular layer, F, the true phloem. Again there is a gradual transition to

the cells of the cambium layer, G. All the tissues thus far mentioned up to and including the outer part of the cambium layer make up the bark, M. Inside the cambium is a broad layer, H, of the new wood formed during the second year's growth; inside of that is another broad layer, I, of wood that was formed by the growth of the first year. The two layers, H and I, and the inner part of the cambium layer, constitute the xylem or wood, N. In the layer, I, are several small resin ducts, L. The narrow dark lines running in the radial direction through the xylem and even extending out through the cambium layer into the phloem are the beginnings of medullary rays. In the central part of the stem is the pith parenchyma, K. The projections of the pith parenchyma into the xylem, O, are the places of origin of branches which developed just above the plane of this section.

Cut transverse sections of a second year stem that has lain in alcohol to dissolve out the pitch and has afterward been softened by soaking in equal parts of alcohol and glycerine for twenty-four hours. Do not try to get complete sections, but get thin cuttings showing all the parts from the epidermis to the pith. Mount in Schultze's solution and identify under low power all the above-mentioned parts. Draw enough of the section to locate everything observed.

Cut similar transverse sections of first year shoots. Compare with the preceding section. Draw a portion as before. Cut similar sections of a piece of the stem that is four or five years old. Compare with the other two, drawing a portion as before.

Under high power examine the cambium layer in a delicate section. In this layer the growth of the stem in thickness originates. Find in this layer cells with very thin walls. Draw a few. What is their shape? During the period of growth the cells undergo rapid fission in the tangential direction, the outer halves developing into the various tissues of the bark; the inner halves into the wood. From this layer follow out into the phloem. What changes do the cells undergo as they increase in age? Are the changes abrupt or gradual? Starting again with the thinnest cells of the cambium layer trace the development of the cells into the xylem, stating what you observe.

Compare with the changes on the outer side of the cambium layer. Which are the more abrupt?

Examine the cells of the cortical parenchyma. What is their prevailing shape? Do you find intercellular spaces?

Consider the resin ducts. The study of the development of young shoots shows that the resin ducts are intercellular spaces which have arisen by the gradual drawing apart of the cells to make room for the resin as it is secreted. Examine the cells of the two inner rows of glandular cells next to the duct. In these cells the resin was secreted. What is the shape of these cells? Examine the rows of cells next outside. In these cells starch was stored up to be changed into resin by the action of the cells of the two inner rows. Draw a resin duct with its glandular cells under suitable power.

Examine the cells of the cork layer. What is their shape? Draw a few. In this layer, cell division goes on to a limited extent.

Study the xylem under high power. The cells here seen in cross section are known as tracheïdes of the wood. Draw a few. Find places where three separate layers may be made out in the cell-wall. Draw. Find on the radial walls places where the layers have separated and present somewhat the appearance of a double-convex lens seen in section. These are sections through bordered pits.

Trace a medullary ray from the pith parenchyma out into the cortical parenchyma. Those that can be so traced were the first to originate, and are called primary medullary rays. There are others that extend only part way from the pith to the cortex; these formed later and are called secondary medullary rays. The medullary rays originate in the crowding together of the older cells by the rapidly forming new cells of the cambium.

Examine a resin duct in the xylem and compare its structure with the resin ducts of the cortex. Draw. These resin ducts are connected with the cortical resin ducts by channels through the medullary rays.

Using a piece of fresh green stem, cut thin cross-sections and examine them for cell-contents. Where is chlorophyl found? Determine in what parts of the section starch is present; exam-

ine particularly the cells of the cortical parenchyma, those surrounding the resin ducts, and the phloem. Try to find crystals in the cells in the phloem region. Look for resin ; it may be tested for by tincture of alkanna. If the section is taken in the rapidly growing season, examine the cells of the cambium layer for cell-contents and nuclei. State in what condition you find the cells of the xylem.

9. Cut thin radial sections of the stem. Do not try to get large sections ; a narrow slice from the epidermis to the pith will show every point of the structure. Mount in Schultze's solution. Draw and locate all the parts pointed out in Fig. 40.

Under the high power study the cambium layer, starting with the narrowest cells and examining all in succession out towards the phloem. What is the shape of the cells ? Are the end partitions easily seen ? Is the protoplasm abundant or scanty ? Do you find a nucleus ?

Describe the cells of the phloem. Find long cells with irregularly circular patches of sieve-plates on their sides ; these are sieve-tubes. Draw. Can you find crystals in any of the cells of the phloem ?

Examine the cells of the cortical parenchyma. What is their shape as seen in the radial section ? Find resin ducts. It may be necessary to examine several sections as all may not have passed through a resin duct. Draw some of the glandular cells with a few of the adjacent cells of the cortical parenchyma. Draw also a few of the cells of the cork layer and epidermis. Starting again with the narrowest cells of the cambium, compare the transition to the xylem cells with the transition to the phloem cells. Which is the more abrupt ?

Study the cells of the xylem. They are called tracheïdes. What is their shape ? Note the discoid markings on their walls. These are the bordered pits ; recall their appearance as seen in the transverse section. Do you find any cell-contents in the tracheïdes ? Notice the medullary rays, which run horizontally across the tracheïdes. Can you trace them through the cambium into the phloem ? Count the number of cells in height. Is the number constant in a given specimen ? Examine radial sections of different species of pine. Is the number of cells in

the height of the medullary rays the same in different species? Follow across the tracheïdes from the inner side of one of the annual layers into the next outside layer. What changes do you notice in the size and character of the tracheïdes? Account for the difference. Do you find resin ducts in the xylem? On the border between the tracheïdes and the pith parenchyma, find tracheïdes with spiral or annular markings. Draw. Do you also find some that have both the bordered pits and the spiral markings? If so, draw.

Draw a few cells of the pith. Do you find more than one kind of cell? Do you find markings of any kind on the cell-walls? Do you find any cell-contents?

10. Cut tangential sections and look for the medullary rays which will, of course, be seen in cross-section. These cross-sections have the shape of a double convex-lens seen in section. Draw two or three of the rays, representing accurately the number of cells, and fill in the tracheïdes between.

Class II. **The Angiosperms.**—The angiosperms are distinguished from the gymnosperms by the manner in which the pollen-cells and the embryo-cells are borne. The ovules are borne in closed cavities, the *ovaries*, at the base of *pistils*, which are modified leaves; the pollen-cells are borne in *anthers* raised on *stamens*, which are also modified leaves; both pistils and stamens may be borne in the same flower, *i. e.*, the plant may be monoecious, or they may be borne in separate flowers, *i. e.*, the plant may be dioecious; surrounding the stamens and pistils are other modified leaves forming the floral envelope, which, in normal cases, is composed of an inner circle, the *corolla*, usually of delicate and more or less bright colored leaves, the *petals*, and an outer circle, the *calyx*, usually of green leaves, the *sepals*.

The ripened pollen-grains fall by their own weight, are blown by the wind, are jerked by mechanical arrangements worked by nature, are carried by insects or birds, or in some similar manner are brought from the anthers of the same or of different flowers in contact with the viscid fluid secreted by the *stigma*, which forms the tip of the pistil. Excited into activity by this fluid, the pollen-grain bursts its outer coat and expands its

inner coat into a tube which grows down through the stigma and style until it comes in contact with the ovule, enters the micropyle of the ovule, and finds the embryo-sac. The contents of the pollen-grain now mingle with those of the embryo-sac and the life of a seed commences.

The matured seed encloses an *embryo* and more or less stored-up material, the *endosperm*, to nourish the embryo when it germinates. The relative proportions of embryo and endosperm vary greatly in different seeds. The embryo may be large and the endosperm small; or the endosperm large and the embryo small; in some cases the endosperm is entirely wanting. The embryo is a rudimentary plant. When this rudimentary plant begins to grow, it sends its roots down into the soil and its leaves up into the air. Some plants develop their leaves alternately; others develop them in pairs. From these facts has arisen a division of the Angiosperms into:

Sub-Class I. The Monocotyledons.
Sub-Class II. The Dicotyledons.

Sub-Class I. **The Monocotyledons.**—In the monocotyledons there is only one cotyledon in the embryo. The leaves which are usually parallel-veined develop alternately. In the stems the wood is never arranged in circles, but is placed in bundles that are scattered irregularly through the entire thickness of the stem; in the more woody stems, the bundles are most abundant near the circumference, forming by the interlacing ends of the fibres that compose them a tough rind or false bark to cover the stem. The parts of the flower are usually in threes; never in fives. The flowers range from the inconspicuous, unattractive forms borne by the grasses to the conspicuous and beautiful ones produced by the orchids.

There are about 18,000 species of monocotyledons; these are variously arranged in groups, series, and orders by different botanists. The monocotyledons include some of the most important economic and some of the most beautiful ornamental plants. Our present limits will permit of the study of but a single type.

INDIAN CORN—PRACTICAL STUDIES.

1. Examine an entire plant of Indian corn, *Zea Mays*, when it is in the flower. The male flowers are borne in two-flowered spikelets in spikes at the top of the stem, constituting what is called the *tassel*. The female flowers are borne in dense spikes of many rows on short branches that grow in the axils of the leaves. Each filament of the *silk* is an elongated *style*. The pollen-grains falling or blown from the male flowers extend their tubes through these long styles, fertilize the contents of the embryo-sac at the base of the pistil, and kernels of corn develop. Examine the leaves for their arrangement and venation. Does the plant send down a single tap-root, or does it lose itself in branches? Where do the secondary roots originate? Are there roots of a still higher order?

2. Cut through seeds of corn in a median plane longitudinally at right angles to the broad sides. Notice the thick double-walled coating. This consists of the *pericarp* or wall of the ovary and the seed-coat or developed integument of the ovule. The remains of the style will be found at the apex of the smaller end of the seed. At one side near the smaller end of the seed is the embryo. The embryo is separated from the endosperm by the *scutellum* which is an arrangement for the absorption of the food for the nourishment of the embryo. The endosperm consists of two parts, a firm yellow part on the side of the seed opposite the embryo, and a less firm white part occupying the central portion and the larger end. Draw, showing all you have seen. Scrape off some of the endosperm and mount in water. Determine if starch is present. If it is, draw some of the grains. Dissect the embryos from seeds of corn that have been softened by soaking. Make out the apical bud or *plumule* pointed towards the large end of the seed, the *caulicle* or *radicle* attached to the scutellum and pointed towards the smaller end of the seed. Make longitudinal sections through the radicle and make out the root-cap and the root-sheath or *coleorhiza*. Study the development of the apical bud and radicle in seedlings from a few days to some weeks old.

3. Make a thin median longitudinal section through the de-

veloping radicle of a seedling. Study the loosely arranged cells of the older portion of the root-cap at the very end of the root; above these are more compact and regularly arranged newer cells of the root-cap. Just above these at the apex of the root proper is the growing point of the root. Proceeding from the growing point, study the differentiation of the cells for a short distance back into the root. Notice particularly columns of broad, horizontally flattened cells. The horizontal partitions in these cells will eventually break away, and the column of cells will be transformed into a vessel with long cylindrical segments. Find the origin of the secondary roots, which, in median sections, appear as distinct circular masses at the junction between the root and the stem. Follow up the stem and locate the developing leaves.

4. Cut transverse sections of the stem. Mount in Schultze's solution. Describe the arrangement of the fibro-vascular bundles. Are they definitely placed as regards the outside and the centre of the stem? Where are they most abundant? The space between the bundles is filled with thin-walled fundamental parenchyma. Trace this towards the outside of the stem and notice that it changes near the epidermis into thick-walled sclerenchyma. Notice the same change as you approach the fibro-vascular bundles. Is the epidermis regular or irregular? Find places in the epidermis where the section has passed through stomata; notice the guard cells. In connection with this observation, mount bits of the epidermis torn from the stem with the forceps, and study the surface view of the stomata.

Find and identify in your section all the parts shown in Fig. 41. Draw a fibro-vascular bundle and label the parts.

5. Cut longitudinal sections through an internode, mount in Schultze's solution, and identify all the above tissues as seen in longitudinal sections. Study the markings on the large vessels. Trace some of the fibro-vascular bundles as far as you can and state what you observe.

6. Cut transverse and longitudinal sections through a node of the stem, mount in dilute caustic potash, and trace the fibro-vascular bundles in their passage through the node. Notice especially the intercommunication of the bundles.

7. Mount bits of the epidermis torn from both the upper and the lower sides of the leaf. Do you find stomata on both sides?

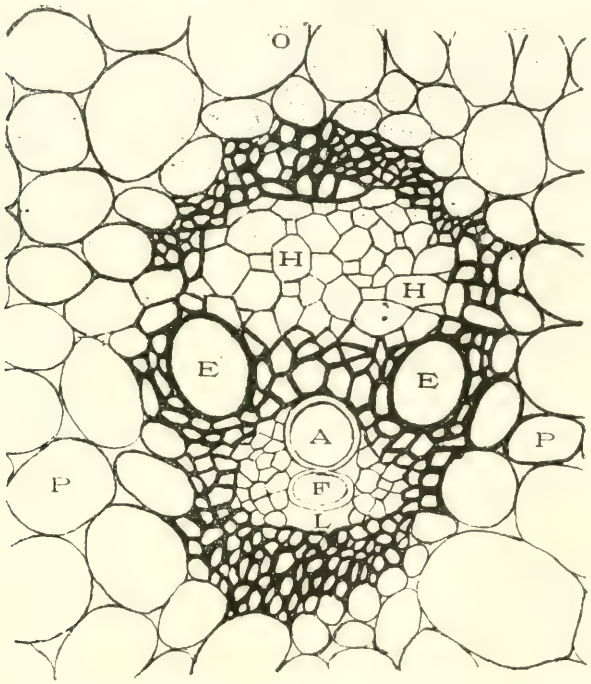


Fig. 41. Fibro-vascular bundle of Indian corn, *Zea Mays*. Transverse section. O, P, P, cells of the ground parenchyma. The tissue represented by thick dark walled cells is the bundle sheath; E, E, pitted vessels; F, an annular vessel; A, spiral vessel; L, empty space produced by the tearing apart of the tissues in consequence of rapid growth; H, H, sieve tissue constituting the bast or phloem portions of the bundle; E, E, A, and F are the main vessels of the xylem. The lower part of the figure was situated towards the centre of the stem.

Draw a stoma under high power with its two guard cells and two subsidiary cells. Are the stomata arranged in any definite way?

8. Treat a piece of the leaf with Schultze's macerating mixture until it is transparent. Examine it for fibro-vascular bundles, noticing particularly the fine branches that serve to con-

nect the different bundles. How are the main bundles arranged with reference to one another? Where with reference to the bundles are the stomata situated?

9. Cut transverse sections of a well developed leaf and also of a very young leaf of a seedling. How do the sections of the fibro-vascular bundles compare in the two cases? Draw a stoma as seen in cross section.

Sub-Class II. **The Dicotyledons.**—The characteristic that has given the name to this sub-class is the pair of cotyledons in the embryo, which develop simultaneously. The leaves are usually netted-veined. The wood is arranged in bundles placed in a circle, or it forms a continuous circle around the stem, though in the anomalous dicotyledons it is arranged in bundles scattered irregularly through the stem, at least in some portions of the plant. The parts of the flowers are usually in fives or fours; sometimes in threes. The flowers are sometimes inconspicuous and colorless, but are usually conspicuous and with bright colored corollas.

This sub-class includes by far the largest number of ordinary plants and trees; it exhibits the greatest variety of differentiation of stem, leaf, and flower, far surpassing in these particulars all the other sub-divisions put together. As these exercises presuppose the previous study of the gross morphology and the analysis of a considerable number of the plants of this sub-class, the practical studies will be directed to the minute anatomy of typical plants with the particular purpose of preparing for the consideration of the nutrition of the higher plants, which follows the practical studies.

THE DICOTYLEDONS—PRACTICAL STUDIES.

1. Examine bits of the epidermis torn from both the upper and under surfaces of the leaves and from the young and tender stems of a number of different plants; almost any of the dicotyledons will do; nasturtium, sunflower, bean, shepherd's purse, cabbage, beech, deutzia, and fuchsia are good. Do you find stomata in equal numbers on both the upper and the lower sides of the leaf? Do you find them on the epidermis of the stem?

Draw stomata as found on several different leaves together with their guard-cells and a few cells of the surrounding epidermal tissue. Do you find chlorophyl in the guard-cells? In the epidermal cells? Do you find a nucleus and nucleolus in the guard-cells? In the epidermal cells?

2. Place parts of leaves between pieces of pith, and cut transverse sections. Notice carefully in what parts of the section chlorophyl is found. Draw and label as many of the parts as you can by comparison with Fig. 42, which is a transverse section of a leaf of the rubber plant, *Ficus elastica*. In that figure A is the epidermis of the upper side of the leaf. B is two rows

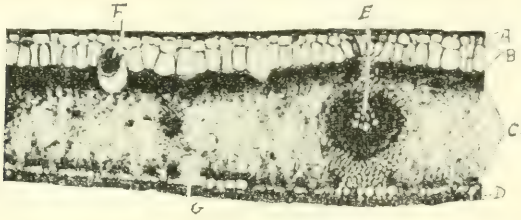


FIG. 42. Leaf of rubber plant, *Ficus elastica*. Transverse section. A, epidermis of upper side of leaf; B, palisade parenchyma; C, spongy parenchyma or mesophyll; D, epidermis of under side of leaf. Directly under E in the mesophyll is a fibro-vascular bundle of a rib; F, a cystolith; G, a stoma.

of more or less rectangular cells of the *palisade parenchyma*. C is the *spongy parenchyma* which constitutes the greater part of the interior of the leaf. D is the epidermis of the under side of the leaf. E is a section through a fibro-vascular bundle which forms one of the *ribs* of the leaf. F is a *cystolith*, an aggregation formed by particles of carbonate of lime which have collected on a mass of cellulose that has formed here abnormally; it is supported by a *stalk* from the surface of the cell in which it has formed. G is a section through a stoma.

3. Study Fig. 43, which is a transverse section of the stem of a house-geranium, *Pelargonium*. It represents the *herbaceous* type of dicotyledonous stems. A is a single row of cells of the epidermis with projecting hairs. B is several layers of cells of the cork layer. C is the cortical parenchyma. D is the phloem or

inner bark. E is the cambium layer and is composed of very delicate radially flattened cells. F is the xylem or wood, which in this plant forms a continuous though somewhat irregular ring around the stem. G is the pith parenchyma.

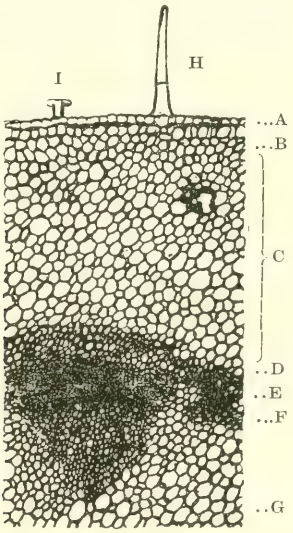


FIG. 43. Transverse section of stem of a house geranium, *Pelargonium*. A, epidermis; B, cork layer; C, cortical parenchyma; D, phloem; E, cambium layer; F, xylem; G, pith parenchyma; H, matured hair; I, young glandular hair.

Cut transverse sections of the geranium stem and verify the figure. In what parts do you find chlorophyl? Starch? In the cortical parenchyma find crystals. Treat with acetic acid. If the crystals are composed of carbonate of lime, they will dissolve with effervescence; if they are composed of oxalate of lime, they will not be dissolved. If the crystals are not affected, treat with hydrochloric acid. This acid dissolves the carbonate of lime with effervescence; it dissolves the oxalate of lime without effervescence.

Treat a section of geranium stem with Schultze's solution. What portions are composed of normal and what of lignified cellulose? Treat another section made from a fresh green

stem with dilute iodine. In what parts do you find protoplasm? Do you find nuclei and nucleoli in any of the cells? In what parts do you find starch? Look for intercellular spaces, using high power, if necessary. Where do you find them? Under high power study the cell-walls of the large vessels in the xylem; also in the phloem. Make out three layers in the wall.

4. Cut longitudinal radial sections of the geranium stem. Draw and locate all the tissues shown in Fig. 43. Under high power examine the vessels of the xylem for markings on the walls. Scalariform vessels, i. e., vessels whose side walls are so marked as to resemble ladders; spiral vessels, i. e., vessels with a band running about them spirally; annular vessels, i. e., vessels with rings of thickened tissue at intervals; and pitted vessels may be found in favorable sections. In the region of the phloem, bast fibres are found, i. e., elongated, narrow vessels with pointed ends; also sieve tubes, i. e., tubes with more or less circular plates on their surfaces which serve as sieves to allow the passage of certain portions of the protoplasm from cell to cell. It may not be easy to make these out. Treat pieces of the stem with Schultze's macerating mixture, dissect them, and search for all the above vessels.

5. Cut a transverse section of the milkweed stem. Draw it under low power and label all the parts you can make out by comparing it with Fig. 43. It will be seen that this stem corresponds very well with the geranium stem in structure. There is a tendency to divide the ring of xylem into four parts or bundles which are, however, connected by the cambium layer which forms a complete ring. The cambium in the bundles is called *fascicular* cambium; that between the bundles, *interfascicular* cambium. On the inner side of the cortical parenchyma and just outside the inner phloem are irregular patches of denser tissue; these are bundles of bast fibres, and associated with them are *latex tubes* or *laticiferous vessels*. The latex tubes are not, however, confined to the bundles of bast fibres, but spread as a very delicate net-work throughout nearly all the tissues of the stem.

Cut longitudinal radial sections of the milkweed stem and study the scalariform, spiral, pitted, and annular vessels of the

xylem, and the bast fibres and sieve tubes of the phloem. Also dissect a piece of the stem that has been treated with Schultze's macerating mixture and look for these vessels.

6. Cut a transverse section of a well-developed sunflower stem. Draw it under low power and locate all the parts you can by reference to Fig. 43. Notice that the vascular tissues are here separated into quite a number of distinct fibro-vascular bundles connected by delicate interfascicular cambium. Each bundle develops on the inner side into the large and small vessels of the wood; on the outside, into sieve tubes and bast fibres.

Cut longitudinal radial sections of the sunflower stem, and study under high power the scalariform, spiral, pitted, and

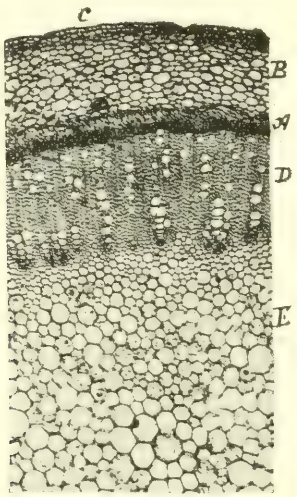


FIG. 44. Transverse section of basswood at end of first year's growth. E, pith parenchyma; D, xylem; A, position of cambium layer. Just outside of this is the phloem; B, cortical parenchyma; C, epidermis.

annular vessels of the xylem, and the bast fibres and sieve tubes of the phloem.

7. Cut and study in the manner indicated in the preceding exercises transverse and longitudinal sections of other herbaceous dicotyledons. Artichoke, blackberry, raspberry, clem-

atis, evening primrose, pigweed, and all other similar stems are good.

8. Cut transverse sections of the petiole of horse radish. This represents the anomalous dicotyledonous type. The wood is not arranged in a circle, nor even in bundles arranged in a circle, but the fibro-vascular bundles are scattered about without definite order. For another example of the same type cut transverse sections of the petiole of plaintain.

9. Study Fig. 44, which is a transverse section of the stem of basswood. It represents the *arboreous* type of the dicotyledons. The section from which this figure was photographed was cut late in the season after the activity of the cambium had ceased. It shows the growth of one season. The inner side of the dark ring at A represents the position of the cambium layer; the outer portion of the same ring is the phloem or bast. B is the parenchyma of the cortex. The outer row of cells at C is the epidermis. D is the xylem; in it the large openings are principally scalariform vessels; the fibro-vascular bundles, which form a complete ring around the stem, are much crowded together, and the compressed parenchyma between them already begins to assume the form of medullary rays. E is the pith parenchyma.

Fig. 45 shows a portion of a transverse section of an older stem of basswood taken near the pith. A is the pith parenchyma. B is the first annual ring of the xylem. C is a part of the second annual layer. Well developed medullary rays run through B and C. B shows well the large vessels that develop in the first growth, and the small vessels that are formed in the latter part of the season.

10. Cut transverse, radial, and tangential sections of other arboreous stems. By reference to Figs. 43 and 44 identify the various tissues. Maple, birch, elder, elm, cherry, apple, and pear stems are favorable specimens. Draw a portion of each section, indicating particularly any difference you find in the same tissue in the different stems.

11. Imbed in paraffin or celloidin apical buds of lilac, artichoke, or sunflower, and cut longitudinal median sections. Study the thin-walled cells of the *apical meristem*; these cells

have abundant protoplasm and are in an actively dividing condition. Near the apex is the growing point. Trace the cells of the apical meristem back into the stem, and notice their differentiation into the various tissues of the stem that have

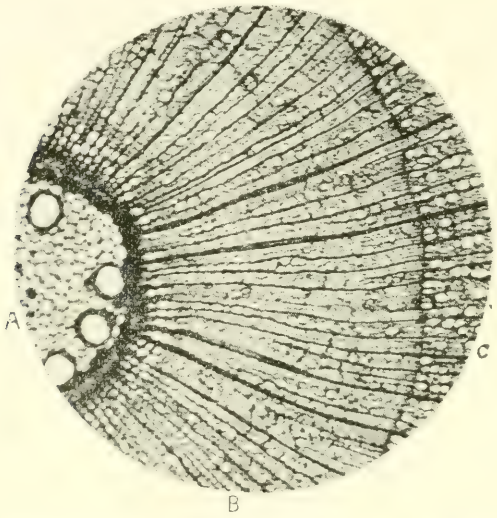


FIG. 45. Transverse section of older basswood stem. A, pith parenchyma; B, wood of first annual ring; C, part of second annual ring.

already been studied. Notice also, particularly, that the meristematic cells are identical in their nature and function with those of the cambium layer.

12. Cut transverse, radial, and tangential sections of the roots of the plants that have been used in numbers 3–11, using both young and old portions of the roots. Are the fibro-vascular bundles continued into the roots? If so, do you find that they here exist in a modified form? Compare each section with the corresponding section of the stem of the same plant. Do you find chlorophyl? Do you find protoplasm in the cells of the root? If so, in what parts? Treat with iodine. Do you find a nucleus and nucleolus? Starch?

13. Examine the roots of the plants that have been studied for root hairs. Do you find them on the young or the old parts?

These hairs are the organs for the absorption of the plant's food from the soil.

14. Germinate beans of some large variety until the radicle is enlarged and is in an actively growing condition. Imbed radicles in paraffin or celloidin, and cut longitudinal median sections. Make out the root-cap. Just back of this and near the apex of the root proper find the *growing point.* Notice the thin-walled cells of the *meristem* that have resulted from recent divisions of the cells at the growing point. Trace these cells up into the radicle and notice that they are continuous with the cambium.

THE NUTRITION OF THE HIGHER PLANTS.

In preceding pages the building up of protoplasm in the green plants that live immersed in water or are supplied with watery solutions of nutrient materials and of carbon dioxide and oxygen during their periods of growth has been outlined. The manner in which the chlorophyl-less plants are nourished from solutions of decomposing organic matter has also been stated. The nutrition of the green portions of the higher plants is believed to be identical in processes with that of the lower green plants when once the nutrient materials have been brought to the places where they are used; the processes of the nutrition of the chlorophyl-less portions are likewise believed to be identical with those of the fungi. It remains, then, to show something of what is known of the modes of absorption and transportation of the nutrient materials and of the manner of storing and diffusing the elaborated foods. These are subjects that have not as yet been fully cleared up and settled by the investigations of science, but it is believed that the general outline of the processes is known.

In the practical studies attention has been called to the root-hairs and delicate cells of the epidermis a short distance back of the tips of the roots. These are the organs of absorption of the nutrient materials from the soil. These cells are provided, at least in some cases, with an acid cell-sap that passes out through the cell-walls by the process of exosmosis, and, acting upon the soil, helps the water in dissolving out certain substances and begins their preparation for the use of the plants. These dissolved materials now pass into the root hairs and the cells of the epidermis by endosmosis, and the cells become turgid or distended. When the outer layers of cells become full, their contents pass by osmotic action and by the special conducting properties possessed by living cellulose walls into those next within, and the process is repeated again and again to carry the nutrient materials farther within and up into the plant. Why this osmotic action should take place in the inward direction only, and not in the outward direction, has not yet been satisfactorily explained. It may be that nature has so con-

structed the cell-walls of the plants that their inner surfaces act as valves to prevent the outward flow while permitting the free ingress of the solutions; or it may be that a greater thickness of the exterior cell-wall restrains the osmotic action in the outward direction, while the thinner wall of the inner side of the cell favors the osmosis of the cell-fluids into the cells situated in the interior. It is also a settled fact that living tissues possess specific conducting powers.

From this continued inflow of nutrient solutions there results a pressure known as *root-pressure*. This pressure forces the nutrient solutions farther and farther within until they reach the woody vessels of the fibro-vascular bundles. The root-pressure varies with different plants and in the same plant under different conditions of temperature and surroundings. Experiments have shown that at times it is sufficient in certain plants to sustain a column of water many feet high; at other times it diminishes until there is a strong suction into the plant from above. The root-pressure provides for the introduction into the tissues of the plant of large quantities of water from the soil.

This water with its dissolved nutrient materials now comes under influences brought about by the *transpiration* of water that is constantly going on through the stomata of the leaves and of the young green cuticle of stems. This transpiration is not the simple physical evaporation of the water. Experiments show that very little evaporation occurs through the cuticle itself, but the stomata, or breathing pores, are nature's provision for the performance of this important function. Acted on by the sunlight and moisture, the stomata open or close. When the necessities of the plant require the loss of but a small amount of water, the guard-cells, from the lack of moisture, become flaccid, straighten, and close the opening of the stoma, and the moisture from within the plant has less free egress. When the plant tissues are abundantly supplied with moisture, the guard-cells become turgid; they are so shaped that, as they become distended, the opening between them enlarges, and the watery vapor has more free egress. In many leaves there are special stomata known as water-stomata through which the water is thus

discharged in the liquid condition. The stomata also open and close under the action of ht and darkness. The guard-cells contain chlorophyl-granules. The light excites these into activity. The processes of assimilation that now go on require water, and this is withdrawn from the cells that lie next within the leaf. The tension in the inner cells is thus diminished. At the same time the guard-cells by the absorption of water have become distended, and the stoma has opened. In the night when on account of the absence of the sunlight the action of the chlorophyl-bodies is suspended and the necessity for fresh supplies of nutrient matters is diminished, the stomata are closed. Beneath each stoma is a cavity, and this cavity communicates directly with the intercellular cavities which abound in the spongy parenchyma of the leaves. The water, leaving behind its contained solids, passes freely through the thin-walled cells in the interior of the leaves into these intercellular spaces, and thence is allowed to pass through the stomata according to the necessities of the plant. This transpiration greatly relieves the internal pressure and so, as already stated, coöperates with the root-pressure in maintaining a constant flow of the liquids in the upward direction.

This constant flow of the water from the soil to the leaves is necessary to bring to the assimilating cells a sufficient supply of nutrient materials to support vigorous growth, for, it is to be remembered, the water contains only minute quantities of dissolved matter. As the water evaporates, it leaves behind the solid substances to feed the plant. Nature, then, furnishes the required amount of nutritive matter by the combined action of root-pressure, the transpiration of the water from the leaves, and the special conducting properties of the woody walls of the elements of the fibro-vascular bundles.

Under these combined influences, the watery solutions rise, in part probably through all the tissues, but mainly through the pervious cell-walls of the tracheïdes and large woody vessels of the fibro-vascular bundles of the newest wood. That they do not rise in the cavities of the vessels to any great extent is proved by the fact that these are ordinarily found to be filled with air when the stems are cut through. Experiments also prove that

the solutions do not rise freely through the tissues of the cortex, nor through the old heart wood, nor the pith parenchyma. The porous walls of the large vessels of the fibro-vascular bundles are believed to possess properties peculiar to themselves, making them good conductors of the water with its dissolved solids up through the stem and its branches into the leaves.

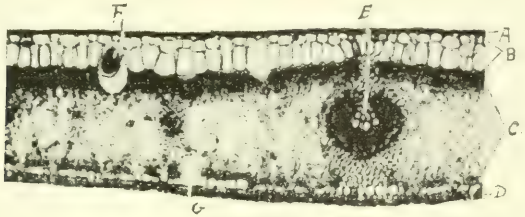


Fig. 46. Leaf of rubber plant, *Ficus elastica*. Transverse section. A, epidermis of upper side of leaf; B, palisade parenchyma; C, spongy parenchyma or mesophyll; E, epidermis of under side of leaf. Directly under E in the mesophyll is a fibro-vascular bundle of a rib; F, a cystolith; G, a stoma.

The water from the soil, with its dissolved ammonia compounds, and nitrates, sulphates, and phosphates of sodium, potassium, calcium, and magnesium, and some of the salts of iron, is brought to the chlorophyl-bearing cells of the leaf. The palisade cells of the upper side of the leaf, B, Fig. 46, are lined with chlorophyl-bearing protoplasm. It is in these cells that the manufacture of the raw materials into new protoplasm is principally carried on. The cells of the spongy parenchyma, C, assist, but are far less active than the palisade cells. The water from the roots brings with it dissolved oxygen. This gas, together with carbon dioxide, also enters freely through the epidermis of the leaf, especially through the epidermis of the upper surface. In the chlorophyl-bodies of the palisade cells, acted upon by the kinetic energy of the sunlight, the carbon dioxide and water are decomposed, and the complicated metabolic changes in building up the protoplasm out of the nutrient materials are effected. In these processes the absorbed oxygen of the air and the oxygen of the carbon dioxide and water are more than sufficient to satisfy the affinities of the other ele-

ments, and a portion is returned to the air as free oxygen. Water, as *water of organization*, also enters directly into the make up of the protoplasm.

The protoplasm necessary for the development of the tissues of the leaf is used *in loco*, but large portions are converted into reserve materials to be transported to other parts of the plant, there to be used at once in the immediate growth of those portions, or to be held in store for the future needs of the plant. The changes that now occur are involved in obscurity, but something is known of them. The most easily demonstrable reserve product of the protoplasm is starch; other products are known to be formed, and starch is undoubtedly not the first product. The starch is formed in the chromatophores. Each grain of starch contains a certain amount of potential energy that has been stored up in it by the action of the kinetic energy of the sunlight on the carbon and oxygen of the carbon dioxide, which has been absorbed from the atmosphere, and the hydrogen and oxygen of the water, which has risen from the roots. So much life-sustaining energy and matter have thus been reclaimed from the inorganic world to be laid up for the growth of the plant. In the growth of the plant this potential energy is again converted into kinetic energy. The plant does work. Its food solutions are raised from the soil, and the elaborated foods are conveyed from the leaves to the various parts of the plant. Not only this, but all the sub-aerial portions are lifted and raised up into the air. To do this work energy is required, and the source of this energy is in the chemical changes already described as building up the starch granules. This store of inorganic matter and potential energy—now a mass of organic matter, the starch granule—may not only serve as food for the plant, but also, eaten by man or animals, may sustain animal life, and may again be transformed into the kinetic energy of movement or of heat. In these changes that occur in the chlorophyl-granules in the formation of living matter out of solar energy and inorganic matter, how close we are to the beginnings of life, and yet how far beyond our comprehension are the mysterious changes that take place!

Starch is a colloid substance, and will not dissolve in water

at the ordinary temperatures; it is therefore a form well adapted for the preservation of the elaborated food materials for future use. In this form the food can be locked up in the cells until the necessities of the plant call for it, when it can be transformed into crystalloid substances which can dissolve in water. This transformation is effected by the action of unorganized ferments or enzymes, one of which, at least, diastase, has been proved to be one of the products of the protoplasm in the leaves and in those parts of the plants where the starch is stored as a reserved food. By the action of these ferments the starch is converted into glucose, cane-sugar, and similar substances containing the same elements as starch, but all soluble in water. Those portions of the elaborated food materials that are not needed locally in forming the cellulose walls of the cells, and in the further development of the leaf pass by diffusion from the palisade cells into the cells of the spongy parenchyma, and on to the parenchymatous sheath of the fibro-vascular bundles. Diffused through the cells of this sheath and through the bast portions of the stem, and to some extent through other tissues, the elaborated food materials are carried to all the growing parts of the plant and to those portions in which the materials are stored up for future use. When vital action in the leaf ceases in autumn, the food products are almost wholly transferred from the leaf to other portions of the plant.

In building up new protoplasm in whatever portions of the plant it is needed for the repair or further growth of the tissues, it is believed that the elements of the starch, in the transformed form of glucose, enter into combination with nitrogen and sulphur and other elements of the cell-sap and form complex compounds to which, for the want of a better, the name *proteids* is given. The name signifies simply *first forms* and is applicable to numerous substances of varying chemical composition. The particles of the proteids are taken into the already existing protoplasm by a process known as *intussusception.*

When the protoplasm is used in building up the tissues of the plant, it is oxidized. To effect this oxidation oxygen is constantly being absorbed through the epidermis of the leaves as already stated. Certain elements are deposited to build up the

plant tissues. The principal waste products of this oxidation are carbon dioxide and water, which are excreted by the plant. This taking in of oxygen and giving off carbon dioxide constitutes the *respiration* of the plant. In the daylight this process is obscured by the reverse process of taking in carbon dioxide and giving out oxygen. In the night, when the latter process ceases, the respiration is best observed.

The fibro-vascular bundles, which play so important a part in the transportation of the crude materials from the soil to the leaves and of the elaborated materials to the points where they are needed, are made up of spiral, scalariform, annular, pitted, and other vessels, together with bast fibres and sieve-tubes. They have developed from the enlargement of cells and the breaking down of their end walls so as to form continuous tubes of greater or less extent. Their walls have in many cases attained a considerable thickness because of the continued deposit of cellulose. The various markings on the cell-walls are due to the unequal deposits of the cellulose during this secondary growth.

The fibro-vascular tissue in the stems assumes various shapes. In the conifers its disposal is quite uniform in a ring around the stem. In the dicotyledons there is great variety. In the monocotyledons the bundles are arranged through the stem irregularly. A superficial study of Gray's Manual would lead one to suppose that all plants in which the bundles are irregularly scattered through the stem are monocotyledonous; and that all the dicotyledons have the vascular tissue arranged in a simple circle or in bundles placed at intervals in a circle. Such, however, is not the fact.

Many attempts have been made to classify plants in accordance with the kind and arrangement of the fibro-vascular bundles, but none are very satisfactory. DeBary's classification as modified by Goodale is as follows:

I. **The Palm Type.**—A cross-section of most monocotyledonous stems shows that the bundles are not arranged in a simple ring, but that they are irregularly scattered or more or less crowded to form a shaft, which may be hollow, as in most

grasses, or filled in the centre with parenchyma through which scattered bundles run (Fig. 47).

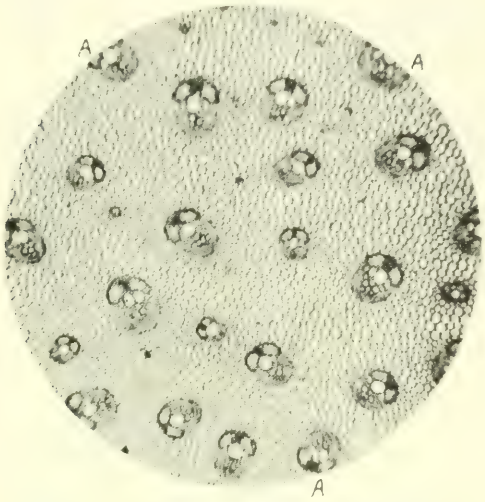


FIG. 47. Transverse section of a palm stem.

II. **The Dicotyledonous Type.**—The bundles are arranged in a simple circle, within which is pith and wood, outside of which is cortex and bark (Fig. 48).

III. **The Anomalous Dicotyledonous Type.**—These differ from the normal dicotyledons in not having all the bundles arranged in a circle. The extra bundles may be scattered about through the stem as in Fig. 49, a transverse section of the stem of bristly sarsaparilla ; they may be scattered about in the cortex outside of a circle of bundles ; they may be arranged in a circle in the pith parenchyma, as at B, B, in Fig. 50, a transverse section of the stem of *Piper futokadsura*, a tropical plant closely related to the plants that produce black pepper ; or they may be situated at the centre of the pith parenchyma, as at C, C, Fig. 51, a transverse section of the petiole of horse chestnut. In this case there are three bundles, parts of two only being shown in the figure.

This consideration of the fibro-vascular bundles—though very

incomplete—has prepared the way for the study of the further disposal of the prepared food in the plant, which will now be considered in the three principal types of a dicotyledon, a gymnosperm, and a monocotyledon.

I. **The Dicotyledons.**—Emphasis has been laid on the fact that the food materials elaborated in the leaves are carried in the parenchymatous sheath of the fibro-vascular bundles and in the bast portions of the cortical parenchyma to the growing portions of the plant. In the dicotyledons the actively growing parts are the tips of the stem and branches, the tips of the roots, and the *cambium layer*, A, A, Fig. 52, which is continuous

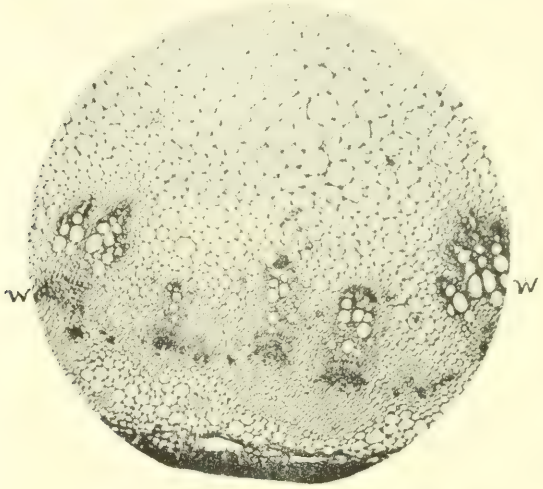


FIG 48. Transverse section of a sunflower stem.

with the apical meristem of the stem and roots and with it forms a sheath that separates the wood portions of the plant from the cortical portions. The growth of the plant in length arises in the apical meristem. From the cambium layer arises the whole growth of the stem in thickness. The elaborated food materials brought from the leaves to this layer are taken up by the young and vigorous protoplasm with which these cells are filled. The protoplasm builds up its cell-wall by the secretion of cellulose and the deposit of mineral substances, but as the mass of the

protoplasm continues to increase by the further absorption and assimilation of the food material brought to it, the cell-

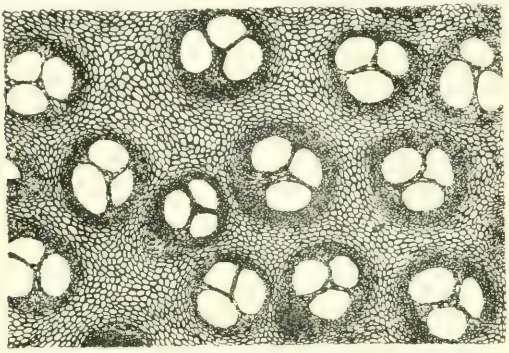


FIG. 49. Transverse section of stem of bristly sarsaparilla.

contents separate into two portions. This separation begins with the division of the nucleus. Each of the new nuclei draws

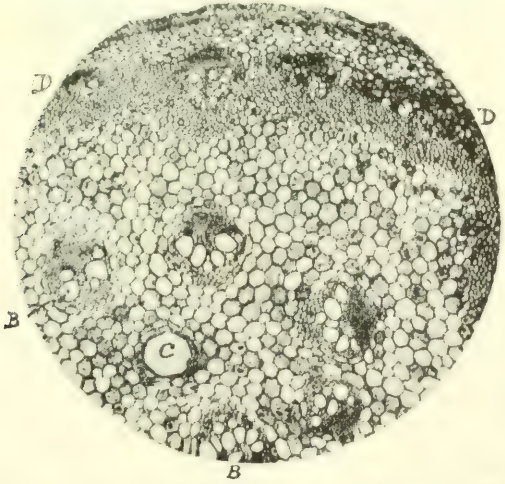


FIG. 50. Transverse section of stem of *Piper futokadsura*. DD, the normal ring of fibro-vascular bundles; BB, the second ring of bundles; C, the hollow centre of the stem.

the growing protoplasm around itself, and the two cells work together to build up the cell-wall that grows between them.

The cells multiply by throwing partitions across through their centres in the tangential direction, the resulting cells becoming flattened in the radial direction by the pressure of the cells on one another; and lengthened in the tangential direction, space for which is allowed by the stem's enlargement in size. The resulting cambium cell therefore presents a more or less flattened rectangular cross-section; see the cells of the layer, A, A, Fig. 52.

The development of these cambium cells is very mysterious.

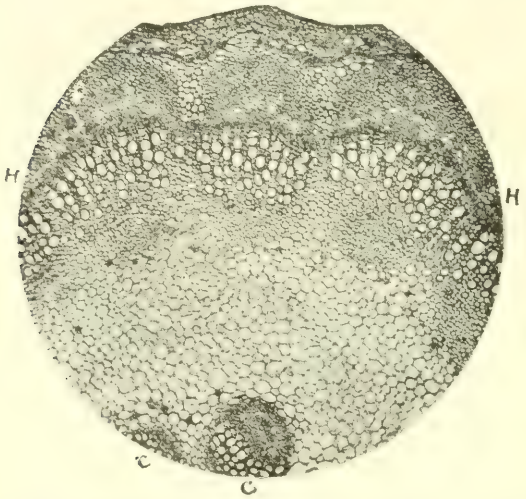


FIG. 51. Transverse section of petiole of horse chestnut. H, H, the normal ring of fibro-vascular bundles; C, C, the centrally situated bundles.

After the division of the protoplasm into two parts, the half of the cell situated towards the outside of the stem develops into cells of the bark, or cortex, B, Fig. 52, in which some of the cells develop into the phloem or inner bark, C, composed largely of bast fibres and sieve-tubes, together with, in some stems, latex tubes or laticiferous vessels; some cells develop into the loosely massed cells of the cortical parenchyma, D, which forms the ground tissue of the whole space between the phloem and the epidermis; some into the rectangular cells of the cork layers, E, situated just within the epidermis. The epidermis, F, is sometimes smooth; sometimes hairs or trichomes develop

from some of its cells. In many plants these epidermal hairs serve the important purposes of glands that secrete the essential oils which give the peculiar odor to the plant. This is the case in the geranium. The young hairs are tipped with a glandular cell. As the hairs advance in age, they lose this cell, become



FIG. 52. Transverse section of the stem of *Aristolochia latifolia*. A, A, the cambium layer; G, the xylem; H, pith parenchyma; B, the cortex or bark; C, inner bark or phloem; D, cortical parenchyma; E, cork layer; F, epidermis.

pointed, and no longer form the secretion. As stems increase in age, the epidermis becomes ruptured and in many cases wholly disappears, falling off in fibrous scales. This is notably the case with trees, shrubs, and other perennial plants, its place being taken by cork cells which develop from the cork layer just under the epidermis. The cells of this layer possess a power of division similar to that of the cells of the cambium layer. They are therefore known as *cork cambium*. The thickness of the cork portions of the bark of many trees results from this multiplication of the cells of the cork layer.

The half of the cambium cell situated towards the centre of the stem, starting with the same protoplasm, develops into the tissues of the xylem, or wood, G, which in herbaceous stems consists almost entirely of scalariform, annular, and spiral ves-

sels, arranged sometimes in a narrow ring between the cambium and the pith parenchyma, with points extending towards the centre of the stem, as in Figs. 48, 50, and 51; here the cambium layer forms a complete circle about the stem. Sometimes, instead of a continuous ring of woody growth, the bundles are arranged at intervals in a circle, as in Fig. 48. These bundles may have both the cambium in the bundle and interfascicular

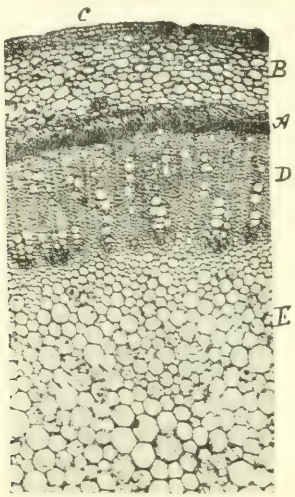


FIG. 53. Transverse section of basswood at end of first year's growth. E, pith parenchyma; D, xylem; A, position of cambium layer. Just outside of this is the phloem; B, cortical parenchyma; C, epidermis.

cambium between the bundles, forming a ring around the stem, as in Fig. 52; such bundles are known as *open fibro-vascular bundles*. Or the cells of the cortical and pith parenchyma may have encroached on the region between the bundles, and, their walls becoming lignified, they may have formed a sheath of sclerenchymatous vessels about the bundle and made of it a *closed vascular bundle*, shutting in the woody layer entirely from the parenchyma.

In cases where more wood is formed, the bundles are closely crowded together, Fig. 53, and where solid wood is formed, the bundles of woody tissue are crowded together more and more

as the tree advances in age, thus giving rise to medullary rays, R, R, R, Fig. 54, or streaks of compressed cells of the ground

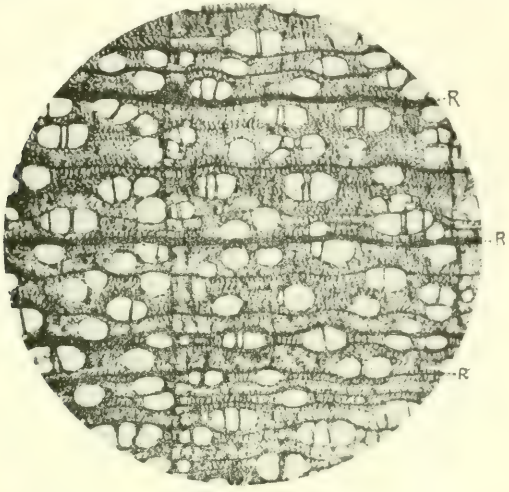


FIG. 54. Transverse section of mature yellow birch showing part of three annual layers. R, R, R, medullary rays.

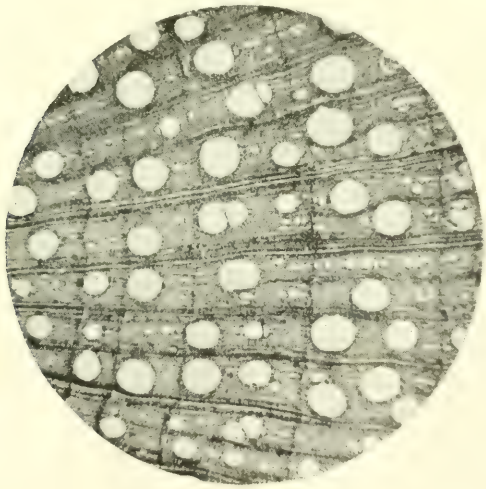


FIG. 55. Transverse section of mature grape stem showing a number of annual layers, large and small vessels of the wood, and medullary rays.

parenchyma extending from the pith to the cortex. Figs. 45 and 55 show that a true ray structure is presented in transverse sections. In radial sections the rays appear as bands extending across the vessels of the wood, R, R, R, Fig. 56. A tangential section of mountain ash, Fig. 57, shows end views of

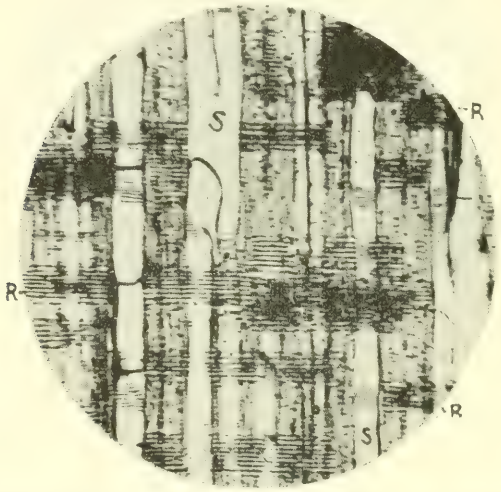


FIG. 56. Radial section of mature yellow birch. R, R, R, medullary rays; S, S, scalariform vessels.

the medullary rays, which are seen to have the appearance of a double-convex lens seen in section.

The medullary rays serve as channels for the elaborated food materials from the cortex to the older tissues in the interior of the stem. It is from the food that is diffused mainly through these channels that the thickening and mineralizing of the cell-walls of the older tissues are brought about, producing out of the same food materials, under those mysterious laws of nature that are so beyond the comprehension of man, countless varieties in the structure of wood.

As the season of growth draws to its close, the activity of the cambium layer diminishes, the recently formed cells become thick-walled, and the tissues of the phloem are in juxtaposition to those of the wood. No cambium layer can be distinguished

in a section cut from a stem gathered in winter. Accompanying the diminishing in activity of the cambium, the newly formed cells become smaller and smaller. Fig. 58 shows that the vessels formed in the early part of the season are larger than those formed after the cambium layer has lost in activity and the autumn bark has become tense. This difference in the

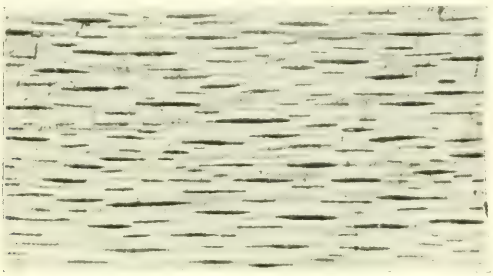


FIG. 57. Tangent section of mountain ash showing end views of the medullary rays.

size of the vessels is the origin of the distinct layers of wood formed in the different seasons. In tropical regions where the growth continues without interruption through the entire year and from year to year, no such difference in the cells is produced, and consequently there are no annual layers.

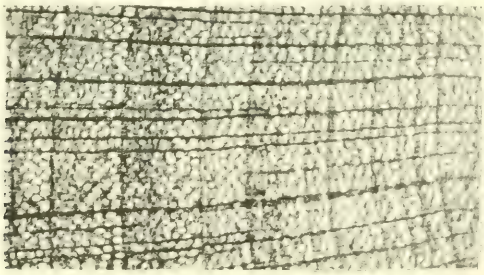


FIG. 58. Transverse section of mountain ash, showing a number of annual layers, medullary rays, the large vessels formed in spring growth, and the small vessels of late season growth. The right side of the figure was situated towards the centre of the stem.

The number of rings of wood is generally believed to indicate the number of years in the age of a tree. Roughly this is true,

yet it is possible for two rings to be produced in the same season. This happens when for some reason the growth is temporarily checked during the season and is resumed later. This might result, for instance, from the destruction of the leaves by caterpillars. A new set of leaves may be produced from the buds that had formed for the following year, and the growth of the stem is then renewed. The number of rings cannot, then, be definitely relied upon to determine the age of a tree, though, of course, it is not probable that the number of rings will differ much from the number of years.

Fig. 58 also well illustrates the fact that the different seasons produce rings of very different thickness. It is not difficult to tell whether a given ring was produced in a warm, moist season or in a cold or dry one.

II. **The Gymnosperms.**—Fig. 59 is part of the cross-section of the stem of the northern pitch pine, *Pinus rigida*. Here, again, the half of the cambium-cell situated towards the outside of the stem develops into the various tissues of the cortex or bark. The cell-walls thicken rapidly to form the phloem or inner bark. Under high powers of the microscope sieve areas can be found on the radial walls of the youngest rows of these cells. These sieve-tubes evidently serve for the more rapid diffusion of the food materials. The cells of the sieve-tubes always contain living protoplasm. In the region around and just outside of the phloem, some of the cells of a freshly cut specimen show crystals. Between the crystallogenous cells are others bearing starch. As the cells develop outwardly through the phloem, the rows, which at first lie straight in the radial direction, become curved. The starch-producing cells become globular in shape by the rapid development of the starch, and give in cross-section the shapes seen in the cortical parenchyma that forms the ground tissue between the phloem and the two or three rows of rectangular cork cells seen just within the epidermis. The epidermis is smooth in the youngest stems, but is soon changed into brown scales of the rapidly dying tissue.

In the cortical parenchyma are large and small resin-ducts, each surrounded by two or three rows of thin-walled epithelial

or glandular cells which secrete the resin or pitch. The origin of these ducts is interesting. It is determined by the study of the youngest shoots at the different stages of their development. The ducts are really intercellular spaces which have arisen by the gradual drawing apart of the glandular cells to provide room

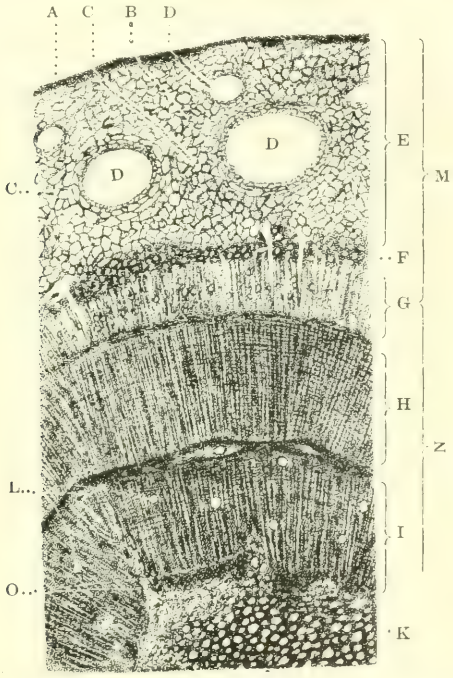


FIG. 59. Northern pitch pine, *Pinus rigida*. Transverse section of stem in the second year of growth. A, epidermis; B, cork layer; C, cortical parenchyma; D, resin ducts; F, phloem; G, Cambium layer; H, wood in process of formation in the second year; I, wood formed during the first year; L, resin ducts; O, the origin of new branches.

for the resin they have secreted. The inner row of glandular cells contains active protoplasm. The cells of the second row also contain protoplasm, but are not so rich in it as the cells of the first row. Investing these two rows of cells is a sheath of cells filled with starch which has been developed here by the

transformation of the food materials that have been brought down in the cortical parenchyma from the leaves. It is evident that it is here stored as reserve food and that it is transformed to furnish nutriment for the resin-forming cells of the inner rows.

The half of the cambium cell on the inner side has developed almost entirely into the tracheïdes which give the fine lace-like

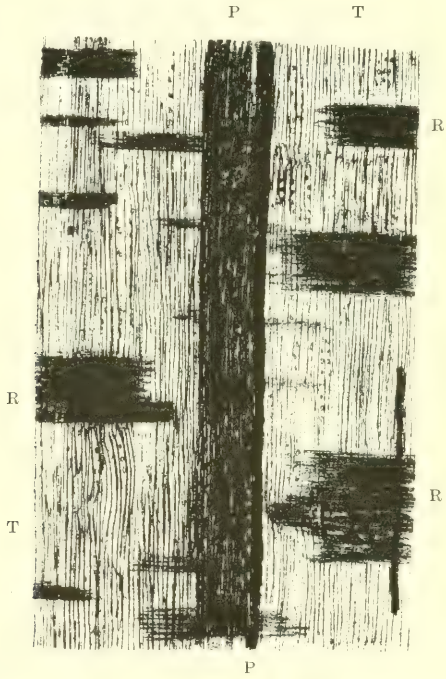


FIG. 60. Radial section of hard pine. R, R, R, medullary rays; T, T, tracheïdes showing discoid markings; P, P, the dense narrow cells formed in late season growth. The tracheïdes on the left of the figure and those immediately to the right of P, P, were formed in the early season growth.

appearance to cross-sections of the wood of conifers, and into pith parenchyma. Here and there are resin ducts similar in structure to those already studied in the cortical parenchyma, but much smaller. No other tissues are found inside the ring of cambium growth except in the youngest stems in the points

projecting from the tracheïdes into the pith parenchyma, where critical study of radial sections shows spiral vessels. As the stem grows older these spiral vessels become changed into true tracheïdes or into the cells of the pith.

Even in Fig. 59, which is a section of a stem in the second year of its growth, incipient medullary rays may be seen extending in straight lines from the pith through the cambium layer into the cortex. Their function is the same as that of the medullary rays already described in the dicotyledons, *i. e.*, to serve as conduits for the passage of the elaborated food materials from the cortex to build up and complete the cells of the already formed wood. In radial sections, Fig. 60, the rays are seen to be made up of from three to twenty rows of cells extending across the tracheïdes. The fully developed rays enclose resin-passages which serve to connect the resin-passages of the cortex with those in the interior of the stem, and to furnish the supply of resin that fills the tracheïdes in the old wood.

Radial sections also show the discoid markings or *bordered pits* that are characteristic of the tracheïdes of conifers. These markings are occasioned by the formation of a dome on the inner wall of the tracheïde ; a similar dome forms directly opposite on the inner wall of the adjacent tracheïde, and the middle lamella of the joint cell-wall of the two tracheïdes is left separated from the other two lamellae. This arrangement undoubtedly aids the osmosis of the fluids from cell to cell ; in the older tracheïdes the domes of the bordered pits break away, and even the middle lamella of the cell-walls disappears; free communication is thus established between the tracheïdes, favoring the rapid transportation of the nutrient fluids to points where they are needed in the secondary growth of the wood.

III. **The Monocotyledons.**—Attention will now be called to the development of the stems of the monocotyledons. A transverse section of a corn stalk presents the typical structure. All the fibro-vascular bundles are placed in the same directions with relation to the exterior and interior of the stem. Each bundle is enclosed in a bundle sheath of sclerenchyma, or thick-walled cells. The two large vessels situated at the side of each bundle are pitted ducts. The space between these and the exterior

portion of the bundle sheath is occupied by soft bast or sieve-tubes. On the inner side of the bundle and between the two pitted ducts, each bundle has a large spiral vessel, and associated with it an annular vessel, which shows only in those bundles where the ring happened to fall in the plane of the section. Still further within may be seen, in most cases, a large irregular air cavity, which was formed by the tearing apart of the tissues by the too rapid development of the stem in thickness.

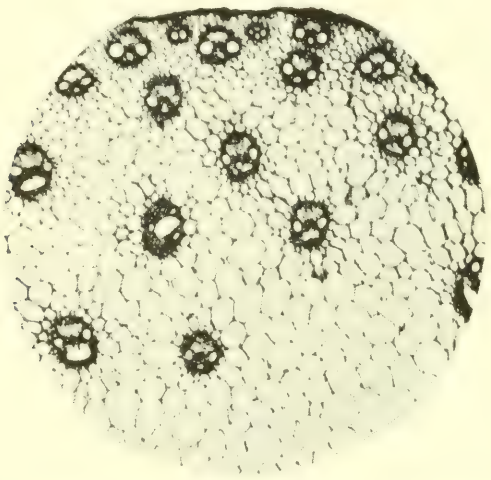


FIG. 61. Transverse section through upper part of a corn stalk.

The fibro-vascular bundles end in the leaves. As in the dicotyledons their office is to conduct the elaborated food materials to the various parts of the plant. From the leaves the course of the bundles is directed toward the centre of the stem. They then turn and pass gradually towards the outside and come to an end in the rind or false bark, as it is called. This rind is formed by the ends of the fibro-vascular bundles and cannot be separated from the stem as the bark of most dicotyledons can. As the new bundles always direct their course to the centre of the stem, they tend to push out those previously formed until they are finally incorporated in the rind. It is for

this reason that Fig. 61 shows more of the bundles in the outer portions than in the interior. It is to be observed that the outer portions of a monocotyledonous stem contain the hardest tissues, which are on the inside in dicotyledons.

Monocotyledonous stems increase in thickness partly by the downward extension of the fibro-vascular bundles from the leaves latest formed, and partly by the development of the parenchymatous tissue brought about by the food material carried down from the leaves by the bundles, so that the growth must come to an end. In monocotyledonous annuals this hardening of tissues is limited by the short period of growth, so that the parenchyma remains soft and thin walled; but in perennial monocotyledons the parenchyma is gradually converted into sclerenchyma, which joins the vascular bundles firmly into a solid mass of great strength.

Most monocotyledonous trees cannot develop lateral buds. The growth is from a single bud at the top, or in some cases from two buds at the top, thus producing dichotomously branched stems. The whole life of the great palms of the tropical regions, which are often 100 to 150 feet in height, is in the tuft of the new growth at the top. The portion of a palm stem which lies above the lowest active leaves is of conical shape. The newest leaves are formed near the apex of the cone. Here all the fibro-vascular bundles common to the leaves and stem originate. The stem below does not increase in size. The cone gradually increases in diameter because of the downward extension of the fibro-vascular bundles until it is of the same size as the stem below, so that these tree palms rise to their immense height of a uniform diameter throughout their entire length and not in the conical shape common to dicotyledonous trees.

It is to be noted, too, that the structure of a monocotyledonous stem gives no hint of the age of the tree. The stem has the same diameter at the close of the first year's growth that it has after years of growth. There are no rings of growth and no other marks that determine, even approximately, the length of the tree's existence.

Our consideration of the growth of plant stems will not be complete without, at least, a brief consideration of the provisions nature makes for the reproduction of the plant. After the first period of rapid development in early spring, the food materials are elaborated more rapidly than they are needed for building up the plant. The starch elaborated in the leaves is conducted in the fibro-vascular bundles and the cortical parenchyma in the transformed form of glucose, sugar, and similar products, and is stored up unchanged in roots, bulbs, and like formations, or is transformed again into starch or oil and

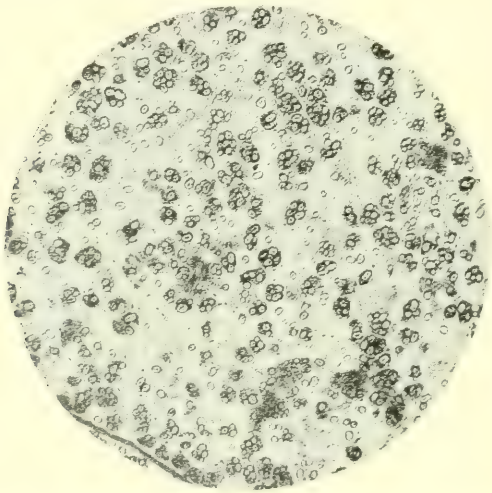


FIG. 62. Section through a cotyledon of a bean showing starch and aleurone granules in the cells.

stored up in tubers, as in the potato, or in seeds, as in corn, peas, and beans, and in the ovules of large numbers of plants for the nourishment of the embryo when the conditions are right for the reproduction of the plant. Nature disposes of these food materials in countless numbers of curious and interesting forms.

Figure 62 is a section from the cotyledon of a bean, and shows the starch granules packed in the cells. The fine granular substance seen associated with the starch in many of the cells is aleurone (variously called plant albumen, protein, prote-

inaceous matter), a substance not fully understood. It is believed to be a resting state of the protoplasm. It is the gluten of wheat and other cereal grains. When the seed is placed in the soil under the proper influences of heat and moisture, this dormant protoplasm springs into new life, the starch is transformed into glucose and sugar, and together they nourish the developing embryo. Even cane-sugar as well as starch and some of the other stored-up products, though always dissolved in the cell-sap, only occurs as a reserve-material, and is not in a fit condition for direct employment in the growth of the plant. When these materials are to be used in the growing germinal shoots, they must be changed into glucose, which can be directly used by the growth. It is believed that the first change is brought about by the secretion in the developing embryo of diastatic ferments. The diastase may be extracted from many seeds by water or glycerine, and a little of it is sufficient to transform large quantities of starch into glucose, especially if the experiment be performed at a somewhat elevated temperature. The diastase secreted in the embryo acts on the starch stored up in the seeds, converts it into glucose, and the glucose is used by the growing seedling for its nourishment.

A similar ferment is known to occur in the sugar beet. In the spring this ferment acts upon the reserve material of the beet which is stored up as cane-sugar, and breaks it up into dextrose and levulose, two forms of glucose, and thus prepares the reserve material for the direct nourishment of the growing plant. Similar diastatic ferments have been proved to occur in the carrot and turnip, which store up reserve material as sugar, and in the tubers and root-stalks of the Compositæ, in which the reserve material is principally inulin, which is converted by the ferment into glucose.

It is believed, too, that peptonizing ferments are developed in the embryo which act on the aleurone, dissolving it and converting it into a form that can be diffused through the cells of the plant. These dissolved proteinaceous substances are then diffused to the various parts of the young plant where they are needed to be reconstructed into organized proteid substances.

Aleurone is a colloid substance, and, even after it has been

peptonized, it can diffuse only slowly. By another change that is only obscurely understood the aleurone is converted into asparagin, which is a crystalloid and therefore easily diffusible. The formation of asparagin has the same significance for the transportation of the proteinaceous stored-up food materials that the conversion of starch into glucose has for the transportation of the starch. Asparagin is formed not only in seeds, tubers, and root-stalks, but also in the germination of winter buds. It penetrates from these reservoirs of reserve materials into the young growing parts of the plant, is there transformed again into proteids, and, in conjunction with the glucose, supplies food for the development of the new protoplasm.

Thus far the germinating plant has been furnished with nourishment wholly from the supplies stored up in the seed. When these supplies are exhausted, its life would come to an end were it not for the chlorophyl-bodies which develop from the dormant conditions in which they are preserved in the embryos. As the leaves unfold under favorable conditions of light, moisture, and warmth, the chlorophyl-bodies spring into activity, multiply by repeated divisions of the corpuscles, perform their work of assimilating the food materials from the soil and the carbon dioxide and oxygen from the air acted on by the kinetic forces from the sun, and build up new protoplasm. So the round of life of the plant is renewed.

REPORTS

OF THE

WARDEN AND INSPECTORS

OF THE

STATE PRISON

AT

CONCORD, NEW HAMPSHIRE,

TOGETHER WITH THE

REPORTS OF THE CHAPLAIN AND PHYSICIAN,

DECEMBER 1, 1894.

VOLUME I. . . . PART V.

CONCORD:
EDWARD N. PEARSON, PUBLIC PRINTER.
1894.

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OFFICERS.

WARDEN.

GEO. W. COLBATH.

DEPUTY WARDEN.

SAMUEL D. ROBINSON.

PHYSICIAN.

E. A. CLARK.

CHAPLAIN.

Rev. E. R. WILKINS.

STEWARD.

GEO. W. PHILBROOK.

HALL OFFICER.

DAVID L. HOBBS.

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MATRON.

Mrs. SADIE COBURN.

NIGHT WATCHMEN.

NAT WIGGIN, *Shops.*
GEO. W. TRICKEY, *Hall.*

WARDEN'S REPORT.

To His Excellency the Governor and the Honorable Council:

GENTLEMEN:—I respectfully submit the following as my report of affairs of the prison for the year ending November 30, 1894.

There are now in the prison 172, 4 of which are females. The earnings from all sources have been $11,412.11, while the expenditures have been $24,597.20. This includes $3,250.00 for the purchase of the wooden shop of Geo. T. Comins. While the expenses of the prison have been more than $1,000.00 less this year than last, there is a large deficit caused by the loss of earnings during the months of January, February, March, April, and May, and to the lower price received for convict labor since that time.

GEO. W. COLBATH,
Warden.

CHAPLAIN'S REPORT.

To His Excellency the Governor and the Honorable Council:

Gentlemen:—I herewith submit my report of labors among the convicts of the state penitentiary.

Were prisoners called upon to answer for themselves many would say they never had a fair chance in the world. The home life, training, and environment in many instances have been such as would degrade and incite to wrong doing. Physical degeneracy, poverty, and neglect have made many unfit to cope with circumstances, and to drift into crime was as easy as it was natural. A large number of those who enter the criminal ranks are from among the unemployed, and many of these were without work because of their inefficiency. Licentious habits, intemperance, and improvidence have been a few of the incentives to a criminal career. The rules and discipline of the prison are in themselves formidable factors in abridging the license that leads to crime. Who can measure the salutary effects of its restrictive rules? The institution enforces what may be disagreeable at first, namely, cleanliness, regular habits, hard labor, self-restraint, and respect for authority; but these things have their reward in that they promote health, strength, efficiency, confidence, hope. Add to this the fact that the authority of the prison is administered not with despotic cruelty but with the noble and efficient purpose of restoring manhood, and it is evident that there is an important work for a chaplain to do in a prison. We are encouraged in our work because of these facts, which give us uncommon opportunity to reach

them. We can speak to them of temperance for we find them sober; we can reason with them of the better life, for they know the bitterness of a sinful life; we can get them to listen to the word of truth which is preached, for, shut out from the tumult of the world, they are not afflicted with the distractions and diversions common to others. I am happy to record that some have been persuaded to live a better life.

The long term of idleness because of the change made in the employment of the men by contract made life exceedingly unpleasant both for the officers and the convicts. I introduced lectures and concerts, which were profitable and greatly enjoyed. During this period the library never did better service, as it contributed to the profit of the convict and the quiet and order of the prison. It continues to be a source of great pleasure, and is well patronized by the prisoners. There has been an addition of two hundred volumes, which nearly covers the loss made by the severe usage of the idleness just mentioned.

The religious services are held every Sabbath morning at 8 : 45, which are universally attended and deeply interesting. Immediately following the preaching service I visit the men in their cells, and hold personal conversation with them.

In conclusion, I return thanks for all assistance rendered by the officials of the prison.

E. R. WILKINS,
Chaplain.

TREASURER'S REPORT.

To His Excellency the Governor and the Honorable Council:

GENTLEMEN:—I have the honor respectfully to submit the following report of the financial transactions on account of the New Hampshire State Prison for the fiscal year ending November 30, 1894:

RECEIPTS.

The Geo. T. Comins Co. (convict labor, etc.)	$2,453.50
Converse & Whitney " "	7,865.25
Subsistence (board of officers)	3,277.86
Incidentals	171.53
Visitors' fees	233.35
Rent	314.00
Water for shops (as per meter)	112.50
Board of United States prisoners	405.20
Interest	80.98
State treasurer, deficiency, current expenses	13,025.22
Total receipts	$27,939.39

DISBURSEMENTS.

Overseers	$10,671.77
Incidentals	1,090.83
Carried forward	$11,762.60

Brought forward	$11,762.60
Subsistence	6,843.03
Deputy warden	1,200.00
Hospital supplies	301.45
Funeral expenses	52.00
Clothing	1,228.68
Discharged convicts	183.00
Physician	500.00
Repairs	540.68
Light, fuel, and water	1,894.17
Furniture	183.78
Buildings	3,250.00
Total disbursements	$27,939.39

The following are the earnings and expenses of the institution for the year ending November 30, 1894:

EARNINGS.

Labor of convicts from December 1, 1893, to December 1, 1894	$10,378.80
Visitors' fees	233.35
Rent	314.00
Board United States prisoners	405.20
Interest	80.93
	$11,412.33

EXPENSES.

Deputy warden's salary	$1,200.00
Physician	500.00
Carried forward	$1,700.00

Brought forward	$1,700.00
Overseers (net)	10,621.77
Clothing	1,228.68
Discharged convicts	183.00
Furniture	183.78
Subsistence (net)	3,565.17
Light, fuel, and water (net)	1,781.67
Hospital supplies	301.45
Funeral expenses	52.00
Repairs	540.68
Incidentals (net)	919.30
*Buildings	3,250.00
Loss on inventory	269.70
Total expenses for the year	$24,597.20
Excess of expenses over earnings	13,184.87
	$11,412.33

FINANCIAL CONDITION.

Assets, December 1, 1893.

Provisions, etc., on hand, as per inventory	$4,855.05
Due from contractor for convict labor and sundry items	1,321.00
Total assets, December 1, 1893	$6,176.05

*This item is for buildings bought of the Geo. T. Comins Co. under the terms of their contract, and, while increasing the expenses for the year, gives the institution additional room permanently.

ASSETS, DECEMBER 1, 1894.

Provisions, etc., on hand, as per inventory	$4,585.35
Due from contractor for convict labor	1,431.05
Total assets, December 1, 1894	$6,016.40
Balance drawn from state treasury	$13,025.22
Decrease in assets	159.65
Net loss for year	$13,184.87

The claim against the contractor, reported above, consists of the following item:

Convict labor for November, 1894	$1,431.05

SOLON A. CARTER,

Treasurer of State Prison.

PHYSICIAN'S REPORT.

To His Excellency the Governor and the Honorable Council:

Gentlemen: With the end of the prison year comes the honor of submitting my annual report.

The sanitary condition of the institution is satisfactory, and the general health of the inmates continues excellent. The services of the physician have been in demand at each daily visit during the year, largely for ailments incident to impaired constitutions from previous dissipations.

But three deaths have occurred during the year, one from chronic gastritis, one from tuberculosis, Adolphus Dessau, who was afflicted with the disease when committed to prison, one as a result of the only serious accident. While W. L. Demerritt was at work upon a building, then in process of construction by the contractors, he in some way made a misstep, or, in reaching out too far from an open window, fell to the ground, and striking upon the head sustained injuries from which death resulted two days later.

My relations with all the officers of the prison have been exceedingly pleasant, and I desire to thank them for their numerous courtesies and valuable assistance.

Appended are the mortuary statistics:

Name.	Cause of death.	Date.
Nathan Scott,	chronic gastritis,	January 14, 1894.
Warren L. Demerritt,	accident,	March 3, 1894.
Adolphus Dessau,	tuberculosis,	April 21, 1894.

Respectfully submitted,

EDGAR A. CLARK,

Physician.

December 1, 1894.

STATISTICS.

Whole number in prison December 1, 1893	173
Received from courts from December 1, 1893, to November 30, 1894	67
Whole number in prison during year	240
Whole number discharged during year, viz.:	
Pardoned	5
Discharged	59
Died	3
Transferred to asylum for insane	1
	68
Whole number in prison November 30, 1894, viz.:	
Males	168
Females	4
	172

AGE WHEN COMMITTED.

Under 20 years	24
Between 20 and 30 years	73
Between 30 and 40 years	46
Between 40 and 50 years	19
Over 50 years	10
	172

SOCIAL RELATIONS.

Married	46
Single	126
	172

HABITS OF LIFE.

Claim to be temperate	67
Admit themselves to be intemperate	105
	172

EDUCATION.

Read and write	140
Read only	10
Neither	22
	172

CRIMES COMMITTED.

Murder, second degree	9
Accessory to murder, second degree	1
Manslaughter	8
Attempt to kill	2
Rape	8
Attempt to rape	10
Arson	3
Accessory to arson	1
Burglary	33
Stealing	28
Forgery	1
Breaking and entering	42
Stealing horse	14
False pretences	1
Tramp	2
Adultery	3
Robbery	4
Bigamy	1
Aiding prisoner to escape	1
	172

NATIVES OF THE FOLLOWING COUNTRIES.

United States	122
Ireland	8
England	5
Canada	33
Scotland	2
Italy	2
	172

LENGTH OF SENTENCE.

30 years	6
25 years	1
20 years	6
15 years	6
10 years	5
8 years	6
7 years	9
5 years	21
5½ years	1
4 years	20
3 years	45
2 years	25
1½ years	1
1 year, 1 month	1
1 year, 1 day	19
	172

REGISTERED CONVICTS.

REGISTER OF CONVICTS IN PRISON DECEMBER 1, 1894.

NAMES.	Ages.	Where born.	What county convicted in.	Crime.	When committed.	Sentence. Years.	Months.	Days.
Charles Stevens	34	Loudon	Merrimack	Rape	April, 1875	30	....	....
Joseph H. Otis	26	Strafford	Strafford	Murder, second degree	Sept., 1880	30	....	....
Joseph Mills	41	New York	Merrimack	Rape	Oct., 1887	20	....	....
George Douran	18	Canada	Hillsborough	Burglary	March, 1888	10	....	....
Joseph Rockfore	24	Canada	Hillsborough	Burglary	March, 1888	10	....	....
Bert W. Richards	25	Augusta, Me	Rockingham.	Two indictments: Polygamy, three years; breaking and stealing, five years	April, 1888	8	....	....
Charles A. Alexander	24	Manchester	Hillsborough	Rape	Sept., 1888	15	....	....
Frank S. Ballou	19	Hill	Merrimack	Rape	April, 1889	20	....	....
Frank S. Loverin	17	Sanbornton	Merrimack	Rape	April, 1889	20	....	....
Charles W. Varney	31	Barnstead	Belknap	Rape	April, 1889	25	....	....
Fred Elvin	39	England	Merrimack	Attempt to rape	Oct. 7, 1889	7	....	....
Levi H. Richardson	29	Denmark, Me	Carroll	Attempt to rape	Oct. 31, 1889	7	....	....
Sylvanus W. Hill	47	New Hampshire	Grafton	Murder, second degree	Mar. 27, 1890	30	....	....
Joseph Little	21	Michigan	Hillsborough	Burglary	Mar. 31, 1890	15	....	....
Napoleon Normando	28	Canada	Hillsborough	Rape	Mar. 31, 1890	10	....	....
Madison G. Colby	39	Franklin	Merrimack	Murder, second degree	April 24, 1890	30	....	....
Andrew J. Davis	54	Exeter	Rockingham.	Manslaughter, first degree	April 24, 1890	20	....	....
Peter Sullivan	43	Ireland	Hillsborough	Stealing horse	Sept. 22, 1890	5	....	....
John Gorman	25	Vermont	Hillsborough	Stealing	Sept. 22, 1890	5	....	....
John E. Hanscomb	45	Maine	Hillsborough	Arson	Sept. 25, 1890	10	....	....
Frank Hardy	40	Vermont	Hillsborough	Attempt to rape	Sept. 29, 1890	7	....	....
John J. Horne	60	New Hampshire	Carroll	Attempt to kill	Nov. 15, 1890	7	....	....
Frank Talbot	42	New Hampshire	Grafton	Attempt to kill	Nov. 18, 1890	5	....	....
Walter H. Shaw	25	New Hampshire	Grafton	Murder, second degree	Nov. 18, 1890	15	....	....
Charles Cross	37	France	Strafford	Manslaughter	Mar. 7, 1891	15	....	....
Frank Hart	38	New Hampshire.	Merrimack	Burglary: 2 indictments, seven years and eight years	April 24, 1891	15	....	....
Daniel Murphy	52	Ireland	Rockingham.	Murder, second degree	May 5, 1891	20	....	....

Frank Woods	33	Massachusetts	Rockingham.	Murder, second degree	May 5, 1891	7	....	....
Lucy Reed	54	Massachusetts	Rockingham.	Accessory to murder, sec'nd d'gree	May 5, 1891	5	....	....
Hattie Beckman	23	Massachusetts	Rockingham.	Manslaughter, second degree	May 5, 1891	5	....	....
John Abare	18	New Hampshire.	Hillsborough	Robbery	Sept. 21, 1891	5	....	....
Oliver Rivers	36	Canada	Hillsborough	Stealing	Sept. 28, 1891	4	....	...
Henry J. La Casse	18	New Hampshire.	Hillsborough	Attempt to rape	Oct. 1, 1891	4	....	....
Benjamin F. Williams	22	Massachusetts	Strafford	Burglary	Oct. 16, 1891	4	....	....
Wm. E. Robinson	23	New Hampshire	Merrimack	Stealing horse	Oct. 20, 1891	4	....	....
Wm. M. Nason	35	Maine	Carroll	Attempt to rape	Oct. 30, 1891	5	....	....
Elmon H. Williams	48	Vermont	Coos	Forgery	Nov. 12, 1891	5	6	....
Uriah C. Rowen	58	New Hampshire	Grafton	Arson	Nov. 21, 1891	10	....	....
Joseph Markee	21	Canada	Coös	Burglary	Feb. 9, 1892	4	....	....
Atis Ross	35	Maine	Coös	Burglary	Feb. 9, 1892	4	....	....
Henry Smith	30	Vermont	Coös	Burglary	Feb. 9, 1892	5	....	....
James McDonald	25	Nova Scotia	Coös	Stealing	Feb. 9, 1892	4	....	....
James McCabe	25	New Hampshire	Strafford	Burglary	Mar. 3, 1892	3	....	....
Fred Munroe	19	New Hampshire	Strafford	Stealing	Mar. 3, 1892	3	....	....
Margaret Harrington	48	Ireland	Hillsborough	Breaking and entering	Mar. 23, 1892	3	....	....
Daniel P. Gage	23	Massachusetts	Hillsborough	Burglary	Mar. 23, 1892	5	....	....
Albert McDermott	23	Massachusetts	Hillsborough	Breaking and entering	Mar. 26, 1892	3	....	....
Harry Heath	19	New Hampshire	Merrimack	Breaking and entering	April 9, 1892	3	....	....
John Brunell	41	Vermont	Cheshire	Murder, second degree	April 14, 1892	30	....	....
Stephen B. Knight	21	New Hampshire	Hillsborough	Burglary	Sept. 28, 1892	4	....	....
Guiseppe Mancera	33	Italy	Belknap	Murder, second degree	Oct. 6, 1892	20	....	....
Charles H. Wade	26	New Hampshire	Carroll	Robbery	Oct. 21, 1892	8	....	....
Willie Wilkinson	19	New Hampshire	Strafford	Attempt to rape	Oct. 22, 1892	3	....	....
Michael Lorenzo, alias Mike Laurence	26	Italy	Strafford	Attempt to rape	Oct. 22, 1892	7	....	....
George F. Whitehouse	32	New Hampshire	Carroll	Attempt to rape	Oct. 22, 1892	8	....	....
Fred Sincere, alias Fred Clough	24	Canada	Hillsborough	Stealing	Nov. 14, 1892	3	....	....
Fred A. Davis	34	Vermont	Grafton	Adultery	Nov. 14, 1892	3	....	....
Frank Lamson	34	Canada	Rockingham.	Burglary	Nov. 21, 1892	3	....	....
Frank Reynolds	41	Connecticut	Rockingham.	Burglary	Nov. 21, 1892	4	....	....
Charles E. Watson	62	New Hampshire	Rockingham.	Manslaughter	Nov. 21, 1892	5	....	....
Joseph Smith	22	Maine	Rockingham.	Burglary	Nov. 21, 1892	3	....	....
Charles E. Brown	37	Vermont	Coös	Stealing horse	Nov. 21, 1892	3	....	....
Peter E. Cady	29	Ireland	Coös	Stealing horse	Nov. 21, 1892	3	....	....
Maurice Higgins	22	Canada	Coös	Stealing horse	Nov. 21, 1892	3	....	....
Thomas Ferguson	24	Pennsylvania	Strafford	Breaking and entering	Mar. 11, 1893	4	....	....
John Hughes, alias Lawrence Billy	25	New Jersey	Strafford	Burglary	Mar. 11, 1893	5	....	....
James Murphy	24	New Hampshire	Strafford	Breaking and entering	Mar. 11, 1893	2	....	....
James Hurley	18	Massachusetts	Strafford	Breaking and entering	Mar. 11, 1893	2	....	....
Charles Johnson	19	Massachusetts	Strafford	Breaking and entering	Mar. 11, 1893	2	....	....

REGISTER OF CONVICTS IN PRISON DECEMBER 1, 1894.—*Continued.*

NAMES.	Ages.	Where born.	What county committed in.	Crime.	When committed.	Sentence. Years.	Months.	Days.
William H. Allen	29	Scotland	Strafford	Stealing	Mar. 11, 1893	3	....	....
Willie Wentworth	21	New Hampshire	Strafford	Breaking and entering	Mar. 11, 1893	2	....	....
David Robinson	59	Canada	Strafford	Breaking and entering	Mar. 11, 1893	3	....	....
Patrick Conners	23	Ireland	Hillsborough	Breaking and entering	April 12, 1893	2	....	....
Edward Burns	28	England	Hillsborough	Breaking and entering	April 12, 1893	2	....	....
Martin Welch	34	England	Hillsborough	Breaking and entering	April 12, 1893	3	....	....
Felix Bushey	22	Canada	Hillsborough	Breaking and entering	April 12, 1893	3	....	....
Thomas Nolan	29	Ireland	Hillsborough	Breaking and entering	April 14, 1893	2	....	....
Edward Strickford	23	Canada	Hillsborough	Stealing	April 14, 1893	4	....	....
Frank Worcester	37	New Hampshire	Hillsborough	Stealing	April 14, 1893	4	....	....
David Bullard	35	Vermont	Cheshire	Breaking and entering	April 15, 1893	3	....	....
Harry Wentworth	32	Maine	Rockingham	Rape	April 22, 1893	15	....	....
Harry Lester	26	England	Rockingham	Burglary	April 22, 1893	5	....	....
Osborn Eldridge	20	New Hampshire	Carroll	Burglary	April 27, 1893	4	....	....
J. H. Bradley	32	Vermont	Hillsborough	Stealing	May 5, 1893	3	....	....
Henry E. Lear, alias Bernard Fowler	65	Vermont	Hillsborough	Stealing horse	Sept. 26, 1893	7	....	....
George Bigner	21	New York	Hillsborough	Burglary	Oct. 3, 1893	2	....	....
Winnie Wentworth	32	New Hampshire	Merrimack	Burglary	Oct. 5, 1893	5	....	....
Joseph Hagar	30	New York	Merrimack	Breaking and entering	Oct. 5, 1893	3	....	....
William A. Levi	50	New York	Strafford	Manslaughter	Oct. 9, 1893	8	....	....
Herbert E. Knight	23	Maine	Hillsborough	Breaking and entering	Oct. 10, 1893	5	....	....
John Magee	38	Canada	Cheshire	Stealing	Oct. 26, 1893	2	....	....
George Howe	29	New Hampshire	Cheshire	Burglary	Oct. 26, 1893	2	....	....
Frank Cobb	33	New Hampshire	Cheshire	Burglary	Oct. 26, 1893	2	....	....
William P. Rugg	44	New Hampshire	Cheshire	Breaking and entering	Oct. 26, 1893	3	....	....
Walter Cobb	23	New Hampshire	Cheshire	Burglary	Oct. 26, 1893	2	....	....
Frank S. Blake	45	Massachusetts	Cheshire	Breaking and entering	Oct. 26, 1893	3	....	....
Marshall E. Hill	23	Massachusetts	Cheshire	Burglary	Oct. 26, 1893	2	....	....
Charles C., alias Carlos C. Tuttle	45	New Hampshire	Hillsborough	Arson	Oct. 31, 1893	7	....	....

George Woodman	23	Massachusetts	Rockingham	Breaking and entering	Nov. 1, 1893	2		
James Blake	18	Maine	Carroll	Horse stealing	Nov. 13, 1893	2		
Charles H. Richardson	54	New Hampshire	Grafton	Adultery	Nov. 16, 1893	3		
Dick Kennedy	18	Vermont	Grafton	Burglary	Nov. 16, 1893	2		
Fred Murray, alias Bailey	26	Canada	Coös	Burglary, 2 indictments	Nov. 20, 1893	8		
Albert Jameson	24	New Hampshire	Merrimack	Manslaughter	Nov. 21, 1893	3		
Michael Croning	25	New Hampshire	Hillsborough	Stealing	Nov. 21, 1893	3		
Frederick Mayotte	28	Canada	Hillsborough	Stealing	Jan. 9, 1894	3		
Moses Gordon	33	Canada	Hillsborough	Stealing	Jan. 9, 1894	2		
George Houlton	48	Connecticut	U. S. Court	Stealing from post-office	Jan. 9, 1894	3		
Frank H. Hooks	20	North Carolina	U. S. Court	Breaking and entering post-office	Jan. 9, 1894	3		
Bennie E. Hoyt	20	Vermont	U. S. Court	Breaking and entering post-office	Jan. 9, 1894	3		
Wm. Stewart	48	Canada	Hillsborough	Stealing	Jan. 16, 1894	1		1
Joseph Riley	33	Pennsylvania	Hillsborough	Breaking and entering	Jan. 16, 1894	1		1
John McKenna, alias James Burns	27	Rhode Island	Hillsborough	Breaking and entering	Jan. 16, 1894	1		1
Clarence Laveen	17	Wisconsin	Hillsborough	Stealing	Jan. 16, 1894	2		
John McDonald	32	Canada	Hillsborough	False pretenses	Feb. 13, 1894	4		
Amedee Thibault	19	Canada	Strafford	Burglary	Feb. 28, 1894	1		1
Michael Devlin	30	New Hampshire	Strafford	Breaking and entering	Feb. 28, 1894	1		1
Fred Davis	18	New Hampshire	Strafford	Burglary	Feb. 28, 1894	1		1
Jerry Haggerty	20	Ireland	Strafford	Arson	Feb. 28, 1894	2		
Joel C. Danrow	39	New York	Merrimack	Stealing	April 11, 1894	3		
Wm. M. Ladd	37	Massachusetts	Carroll	Stealing horse	April 28, 1894	5		
Edward Atkins	35	Canada	Hillsborough	Stealing	May 8, 1894	3		
Paul Laundry	19	Canada	Hillsborough	Stealing horse	May 8, 1894	3		
Daniel Donahue	42	Canada	Hillsborough	Tramp	May 8, 1894	1	1	
Peter Sencore	17	Canada	Hillsborough	Breaking and entering	May 8, 1894	3		
Frank Kelley	25	New Hampshire	Hillsborough	Attempt to rape	May 14, 1894	3		
John Green	27	New Hampshire	Hillsborough	Burglary	May 14, 1894	1		1
John Pixley	30	New Hampshire	Hillsborough	Stealing	May 14, 1894	3		
Joseph M. Davis	29	Scotland	Hillsborough	Stealing horse	May 14, 1894	3		
George Thompson	28	New Hampshire	Hillsborough	Attempt to rape	May 14, 1894	3		
Patrick Mooney	43	Scotland	Hillsborough	Breaking and entering	May 14, 1894	2		
Martin M. Richards	24	Massachusetts	Hillsborough	Stealing horse	May 14, 1894	1		1
Harry A. Frost	19	New Hampshire	Hillsborough	Breaking and entering	May 14, 1894	1		1
Ida Bodwell	35	Vermont	Hillsborough	Stealing	May 23, 1894	4		
Seth C. Parker	25	New Hampshire	Hillsborough	Stealing horse	May 23, 1894	1		1
Eben A. Woodbury	49	New Hampshire	Hillsborough	Breaking and entering	May 23, 1894	2		
Jerry Sullivan	18	New Hampshire	Hillsborough	Manslaughter	May 22, 1894	3		
John Keatings	30	Massachusetts	Hillsborough	Burglary	May 22, 1894	3		
Joseph Vashon	18	New Hampshire	Hillsborough	Burglary	May 22, 1894	2		
Patrick F. Stewart	20	New Hampshire	Hillsborough	Burglary	Oct. 1, 1894	1		1
James Cromby, alias McQueen	22	New Hampshire	Hillsborough	Breaking and entering	Oct. 1, 1894	1		1

REGISTER OF CONVICTS IN PRISON DECEMBER 1, 1894.—*Continued.*

NAMES.	Ages.	Where born.	What county committed in.	Crime.	When committed.	Sentence. Years.	Months.	Days.
Anthony Malone	26	Massachusetts	Hillsborough	Adultery	Oct. 3, 1894	1	6	....
John Ela	23	Canada	Merrimack	Stealing	Oct. 4, 1894	1	....	1
Frank A. Braley	23	New Hampshire	Merrimack	Burglary	Oct. 4, 1894	3	....	....
George True	36	New Hampshire	Merrimack	Breaking and entering	Oct. 4, 1894	3	....	....
Joseph Parent	32	Canada	Merrimack	Stealing	Oct. 4, 1894	1	....	1
Frank D. Johnson, alias Frank D. Brown	33	New Hampshire	Merrimack	Stealing horse	Oct. 5, 1894	4	....	....
George Johnson	20	New Hampshire	Belknap	Breaking and entering	Oct. 5, 1894	3	....	....
Isaac F. Nutting	42	Massachusetts	Hillsborough	Attempt to kill	Oct. 8, 1894	5	....	....
Murdrie Boornazin	23	Armenia	Hillsborough	Stealing	Oct. 8, 1894	1	....	1
Patrick Brown	22	New Hampshire	Hillsborough	Breaking and entering	Oct. 8, 1894	1	6	....
Augustus McIntire	26	Iowa	Hillsborough	Stealing	Oct. 8, 1894	1	....	1
John Nealey, alias Fred Mitchell	19	New York	Hillsborough	Stealing horse	Oct. 8, 1894	2	....	....
Martin McGann	27	Ireland	Hillsborough	Breaking and entering	Oct. 8, 1894	1	....	1
Joseph Blanchette, alias Charles Blanchette	21	Canada	Merrimack	Stealing	Oct. 8, 1894	1	....	1
Myron M. Jenness	18	New Hampshire	Merrimack	Highway robbery	Oct. 8, 1894	2	....	....
Andrew P. Jenness	21	New Hampshire	Merrimack	Highway robbery	Oct. 8, 1894	2	....	....
William B. Wells	23	Vermont	Merrimack	Aiding prisoner to escape	Oct. 8, 1894	3	....	....
Joseph Corkum	39	Canada	Merrimack	Accessory to arson	Oct. 8, 1894	10	....	....
Henry Gouchee	38	New York	Carroll	Stealing horse	Oct. 26, 1894	7	....	....
Peter La France	30	Canada	Coös	Stealing	Nov. 10, 1894	5	....	....
Charles Shaw	30	Massachusetts	Coös	Breaking and entering	Nov. 10, 1894	1	....	1
Louis Robarge	19	Canada	Coös	Breaking and entering	Nov. 10, 1894	3	....	....
George Robarge	17	Canada	Coös	Breaking and entering	Nov. 10, 1894	3	....	....
George Davis	32	New Hampshire	Rockingham	Breaking and entering	Nov. 12, 1894	1	3	....
Edwin H. Moody	30	New Hampshire	Rockingham	Breaking and entering	Nov. 12, 1894	1	3	....

Frank Pelcher	37	Canada	Massachus'ts	Burglary	Nov. 14, 1894	3	....
Arthur W. Woods	30	Massachusetts	Grafton	Stealing	Nov. 14, 1894	2	....
Daniel Barrett	26	England	Grafton	Tramp	Nov. 14, 1894	1	 1
Fred Upson	20	New Hampshire	Grafton	Breaking and entering	Nov. 14, 1894	2	....
Frank Sorrell	21	New York	Grafton	Stealing	Nov. 14, 1894	2	....
Arthur G. McLean	22	Massachusetts	Merrimack	Murder, second degree	Nov. 24, 1894	30	....

TABLE

Showing the number of convicts in the prison, committed, discharged, pardoned, deceased, and escaped in each year since the establishment of the institution, 1812.

Year.	In prison.	Committed.	Discharged.	Pardoned.	Removed to Asylum for Insane.	Died.	Escaped.
1812	1	1					
1813	12	11					
1814	22	14	4				
1815	23	14	5	2			
1816	48	31	5	1			5
1817	59	29	13	3		1	1
1818	69	26	16				
1819	72	16	20	1		1	2
1820	61	18	15	2		2	
1821	65	23	15	2		2	
1822	58	16	19	2	1	3	
1823	66	26	11	5		1	
1824	62	19	17	5		1	
1825	66	24	13	3		1	2
1826	57	13	15	4		1	
1827	48	12	14	7		2	
1828	86	20	8	4			
1829	50	11	9	7		1	
1830	63	31	9	4			
1831	81	24	8	3			
1832	82	19	10	6		1	
1833	81	16	8	9			1
1834	79	13	4	11			
1835	78	23	6	16			
1836	86	21	8	4		1	2
1837	72	12	15	10		1	
1838	70	5	4	3			
1839	73	30	10	15		2	
1840	78	24	4	14		1	
1841	48	28	13	7		2	
1842	92	20	9	3			
1843	99	28	17	4			
1844	88	25	19	15		1	
1845	81	14	8	12		2	
1846	74	30	12	22		1	
1847	61	14	12	13		1	
1848	77	42	11	14			1
1849	82	17	9	2		1	
1850	91	36	10	14	1	2	
1851	92	26	7	11		1	1
1852	111	44	11	11		6	
1853	109	24	9	15		2	
1854	105	28	13	13		6	
1855	97	26	10	17	1	6	
1856	94	32	19	8		3	
1857	86	23	27	9		4	
1858	110	49	14	9			
1859	105	37	22	16	1	3	
1860	110	35	18	10	1	1	
1861	119	42	19	10		4	
1862	112	31	20	12	1	5	
1863	101	22	13	14		5	1
1864	92	22	14	17			
1865	70	9	17	8	1	5	
1866	111	60	7	15		2	1
1867	118	45	17	16		3	2
1868	135	46	13	13		3	
1869	129	39	24	19		2	
1870	118	32	20	18	1	3	1
1871	91	29	38	14	2	2	

TABLE.—*Continued.*

Year.	In prison.	Committed.	Discharged.	Pardoned.	Removed to Asylum for Insane.	Died.	Escaped.
1872	80	25	24	8	.....	4	.....
1873	88	33	19	4	.....	2	.....
1874	95	41	19	5	.....	10	.....
1875	127	56	15	5	.....	4	.....
1876	191	64	32	9	.....	3	.....
1877	212	65	25	15	1	11	.....
1878	236	76	21	9	.....	12	.....
1879	252	58	72	24	1	12	.....
1880	228	48	52	21	.....	4	.....
1881	202	51	39	14	2	7	.....
1882	180	39	32	9	.....	7	.....
1883	168	36	40	2	1	4	.....
1884	182	61	29	7	.....	6	.....
1885	175	35	36	7	.....	5	.....
1886	179	56	43	6	.....	2	.....
1887	182	50	55	5	.....	1	.....
1888	159	38	40	2	1	1	.....
1889	157	42	36	8	2	1	.....
1890	178	68	56	11	1	2	.....
1891	168	61	35	4	1	2	.....
1892	198	72	38	5	2	6	.....
1893	223	66	42	4	1	2	.....
1894	240	67	59	5	1	3	.....
		2,744	1,595	113	23	109	20

THIRTEENTH REPORT

OF THE

STATE BOARD OF HEALTH

OF THE

STATE OF NEW HAMPSHIRE

FOR THE

FISCAL YEAR 1894 AND TO JULY 1, 1895.

CONCORD:
EDWARD N. PEARSON, PUBLIC PRINTER.
1895.

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STATE OF NEW HAMPSHIRE.

OFFICE OF THE STATE BOARD OF HEALTH.

STATE HOUSE, July 1, 1895.

To His Excellency the Governor and the Honorable Council:

I have the honor to present herewith the Thirteenth Annual Report of the State Board of Health.

Respectfully submitted:

Irving A. Watson

Secretary.

MEMBERS OF THE BOARD.

GOVERNOR JOHN B. SMITH . . .	Hillsborough.
ATT'Y GEN. E. G. EASTMAN . . .	Exeter.
G. P. CONN, M. D., *President* . . .	Concord.
JOHN J. BERRY, M. D.	Portsmouth.
IRVING A. WATSON, M. D., *Secretary*	Concord.

JAMES A. WESTON.

Born August 27, 1827.
Died May 8, 1895.

When the State Board of Health was created in 1881 Ex-Gov. James A. Weston was appointed its civil engineer, which position he ably and creditably filled to the date of his death. Almost invariably present at the meetings of the board, he took a deep interest in its work, as well as in all matters pertaining to the welfare of the people. Possessing a judgment of remarkable clearness and discretion, he served the board, as he did every trust imposed upon him, with a fidelity born of an unselfish devotion to duty. With tender memories we sorrowfully bow to the irrevocable edict which has taken from this board a beloved associate, and from the state one of her most useful and honored citizens.

REPORT.

Owing to the inability of the secretary to place in the hands of the public printer the material for this report in season to have it printed before the adjournment of the legislature, it is thought best by the board to revise the copy and bring it down to the date of issue, July 1, 1895; therefore this report covers practically a period of eighteen months. In accordance with a change in the law the reports of this board will hereafter be issued biennially instead of annually.

The experience of more than a decade has fully convinced the board that the position which it has always taken with reference to the character of the reports has accomplished more in the line of sanitary knowledge and advancement among the people of the state than could have been attained had the reports been devoted more to scientific investigations and technical sanitation. We have therefore endeavored to make our reports, or at least considerable portions of them, readable for the masses, and the large demand made by our citizens for these volumes indicates that they are highly appreciated. Three thousand copies are issued annually, but the call for them has exhausted the reports of certain years so that now it is impossible for the board to furnish a complete set.

SANITARY PROGRESS.

Great progress has been made in sanitary matters in this state in a few years, and never has there been a time when the importance of sanitation was so well understood by the people as now. The public realize that good health and longevity are dependent in a very great measure upon the environments of the family. The maintenance of health and the attainment of a ripe old age depend upon certain favorable factors without which these desirable ends

cannot be reached. Sanitary knowledge distinguishes these influences and thus guards against many of the conditions that impair the health and prematurely destroy life. The evidence of the progress made in the direction indicated is shown in the greater attention now given to the subject of public and private water supplies ; sewerage and drainage ; ventilation of school-houses, factories, halls, and private residences ; isolation of infectious and contagious diseases ; the regulation of offensive trades ; and the avoidance of many other conditions and habits detrimental to health and comfort.

ELECTION OF HEALTH OFFICERS.

In the last annual report of this board, we commented at some length upon the necessity of a more efficient local health service, and recommended that the legislature make provisions for the election of one member of a local board of health annually, so that at no time would the board be constituted of men with no experience as health officers, as is very frequently the case under the present law.

This subject was carefully considered in a bill which came before the committee on public health of the house, and was unanimously recommended by that committee, and passed by the house in the following shape :

AN ACT to Increase the Efficiency of Local Boards of Health.

Be it enacted by the Senate and House of Representatives in General Court convened :

SECTION 1. The selectmen of each town shall, within thirty days after the passage of this act, appoint a board of health which shall consist of three persons, selected with reference to their fitness for the office, and they shall be so appointed that the term of office of one member shall expire each year, and the members thereafter appointed shall hold office three years, and until their successors are appointed and qualified. In case a vacancy occurs in the board, the selectmen shall appoint a person to fill the unexpired term.

SECT. 2. When a board of health has been appointed and qualified in accordance with section 1 of this act, the previously existing board of health shall be discontinued.

SECT. 3. Chapter 43 of the Public Statutes is hereby amended by striking out the words "health officers" in section 25, and the words "or health officers" in section 40 of said chapter. This act shall not

apply to cities or to precincts in which health officers are provided for by special act of the legislature.

SECT. 4. All acts and parts of acts inconsistent with this act are hereby repealed, and this act shall take effect upon its passage.

This bill was killed by the senate committee without a hearing, therefore no legislation was secured at the session of 1895 for increasing the efficiency of local boards of health.

It is to be regretted that legislative committees sometimes assume to have greater knowledge in a certain line than a department which is engaged exclusively in the work. We commend this bill to the next legislature, and assert that it is in the line of progress and necessary to secure better sanitary work in many of the towns in the state.

The experience of the last town elections most emphatically corroborates the position taken by this board with reference to the election of health officers. Immediately after the election, this board received numerous communications somewhat like this:

APRIL 2, 1895.

State Board of Health:

GENTLEMEN,—The board of health elected at the last town-meeting has had a meeting, and I have been elected secretary of it. None of us know anything about the business. Send information. The old board has turned over nothing to us; if we have any use for blanks, etc., send them.

Yours truly,

——— ————, *Secretary.*

It is not an exaggeration to say that the board received many letters which are similar to the above. By the time such a board of health has sufficient sanitary knowledge to do a little good work for the town, it is superseded by another board elected in precisely the same manner; hence a town may not, for a series of years, possess a competent board of health.

It is very gratifying to be able to say that this is not true of all towns in the state. If it were, our local health service would be of a most incompetent character. On the other hand, a majority of the towns and cities possess competent health officers who are doing most excellent and valuable work for their localities.

The great sanitary progress which has been made in this state in a very few years is due largely to the work of the local boards of

health, many of which have been instructed and materially assisted by the state board; but we maintain that every town and city in the state should have an efficient health officer, or local board of health, and such a desideratum cannot be acquired if biennial rotation in office is to be followed.

A health officer requires a large amount of knowledge, much of which is of a special and exact character, and which can only be acquired by both experience and study. Therefore, if a town is to have good health service, it should, in the first place, choose able and intelligent men, and then continue them in office so long as they will faithfully fill the position for which they have been selected.

ISOLATION OF CONTAGIOUS AND INFECTIOUS DISEASES.

The regulations requiring the isolation of contagious and infectious diseases, particularly scarlet fever and diphtheria, are now very generally enforced throughout the state. The public has become convinced that these diseases can be restricted by proper management, and the popular sentiment now supports local boards of health in maintaining the necessary isolation, carrying out disinfection, and employing such other means as may be necessary to prevent the spread of these diseases.

The utility of placarding an infected house, isolating as far as may be necessary the patient and attendants, and disinfecting the premises at the proper time is not now questioned in any community, and this kind of work has saved to New Hampshire many valuable lives.

The majority of our towns take prompt action upon the outbreak of these diseases; and have accomplished a great work in the prevention of their spread. We have noticed that in certain towns, which might be named, that scarlet fever, seldom, if ever, gets beyond the first house infected, so efficient is the work of the local board of health. We are convinced that if this kind of executive work was maintained in all of the towns in the state a still greater saving of life would be the result.

SMALL-POX.

The recent outbreak of small-pox in this state and its speedy suppression, exemplifies what can be done in the management of

this disease under modern methods of sanitary administration. A record of the outbreak will be found elsewhere in this report. The fact that the disease had existed for over a month before it was known to the local health authorities; that a great number of persons were exposed; that thirty-eight contracted the disease, and the outbreak was completely suppressed and the state rid of the disease in nine weeks from the time of its discovery, is a sufficient comment upon the methods resorted to for its suppression.

The value of vaccination was most emphatically demonstrated in this outbreak, and but for this protective measure a large epidemic could not have been avoided under the circumstances. Not only was the protective power of vaccination most fully demonstrated, but its power to modify the disease was also clearly shown.

This outbreak is the first of any magnitude that has appeared in this state for nearly twenty years; and it serves to demonstrate how insidiously the disease may at any time be brought into a community. In many localities in this state it would not be so easy a matter to suppress it. If it had appeared under like circumstances in some of our large manufacturing centers, the results might have been much more lamentable.

This outbreak should serve to show the local health authorities that they are at any time liable to have this disease to deal with, and it should also demonstrate to the people at large that vaccination is the only protection against the disease, and that it is the duty of every citizen to be vaccinated.

PUBLIC WATER SUPPLIES.

The board has in contemplation the sanitary examination of the public water supplies of the state, and to that end has commenced the necessary preliminary work. There is no subject more vitally connected with the public health interests of a community than its water supply, and it is the purpose of this board to eventually complete a series of examinations that will be of great value to the state. The only obstacle in the way of rapidly carrying on this work is the lack of specific appropriation for the purpose, we are, however, able to do a little work from year to year, the aggregate of which will be of public importance.

We have, since the organization of the board in 1881, devoted a great deal of time and attention to the matter of public and

private water supplies, and the influence which has been exerted both in an official capacity with local authorities, and in the dissemination of information upon the dangers of water pollution, has resulted in a great improvement in the water supplies of many of our towns. Hundreds of polluted surface wells have been abandoned, and water from an uncontaminated and reliable source has been taken instead. The people of the state have to-day a far more exact knowledge of the dangers that come from a contaminated water supply than they possessed even a decade ago. The fact that typhoid fever is more generally communicated and spread through a water supply than by any other means is now a matter of public information. Likewise it is also known that unwholesome water is the cause of many other ills, and that in order to secure a good quality of potable water, it is necessary to have some knowledge of the conditions which effect the purity of the water supply.

Some of the former reports of this board contain a large amount of information upon these points. The work will be continued by this board in the systematic manner indicated as far as circumstances will allow.

FIRE ESCAPES AT SUMMER RESORT HOTELS.

The board has for many years given especial attention to the sanitation of our summer resort hotels, boarding-houses, etc., believing that the summer visitor is entitled to the greatest protection that can be given him by the state. To this end the board has from time to time caused many sanitary inspections to be made in those localities frequented by the summer visitor, and made many suggestions which have been carried out by the proprietors of summer resort hotels and boarding-houses.

At the present time the board is seeking specific information in relation to fire escapes at this class of hotels. A circular letter, accompanied with a blank, has been sent to the proprietors and managers of all, or nearly all, of the summer resort houses in the state, asking for a detailed report upon the means of escape in case of a fire, the facilities for putting out fire, the source of water supply, the drainage, and other particulars bearing upon the sanitary condition of the place.

Complete replies have not yet been received from all, therefore

a report cannot be made at present upon the individual summer resort hotels. We may say, in a general way, that we find that provision has been made for escape in case of fire in a large majority of the hotels and boarding-houses; that there are some who have not given the matter sufficient attention. The latter class will be asked to make such provisions as may be necessary to fully protect their guests in case of a conflagration.

COMMISSIONERS OF LUNACY.

The State Board of Health constitutes also a State Board of Commissioners of Lunacy. The board has supervision over the indigent insane, with authority to transfer any person of this class that it may deem best to the New Hampshire Asylum for the Insane for remedial treatment.

Since the organization of this commission five years ago, up to September 30 last the board had committed to the state asylum for remedial treatment 279 patients.

Of the number committed and discharged during the past year, there were over 13 per cent. of recoveries and an equal number improved.

The total number of insane persons at the different institutions of the state are given in the following table:

NAMES OF INSTITUTIONS.	Inmates Oct. 1, 1894.
New Hampshire Asylum for the Insane	404
Rockingham County Asylum	55
Strafford County Asylum	
Belknap County Almshouse	8
Carroll County Asylum	14
Merrimack County Asylum	43
Hillsborough County Asylum	86
Cheshire County Asylum	24
Sullivan County Asylum	13
Grafton County Asylum	21
Coös County Asylum	16
Total for state	684

The law which allows the board to transfer certain indigent persons to the state asylum for remedial treatment is one of the most munificent and humane that has ever been enacted by the state. The benefits which have already accrued from this law cannot be computed upon a money basis.

CORRESPONDENCE.

The correspondence of the board is large and requires no little time and attention to give it due consideration. Many questions of more or less magnitude are submitted by local boards of health upon points of law, methods of procedure upon the abatement of nuisances, methods of isolation in contagious and infectious diseases, and many other things relating to the executive work of local health authorities.

A large amount of correspondence is also necessary in many instances in instructing new local boards of health in the duties that devolve upon them.

In addition to the official correspondence alluded to, hundreds of letters are annually received from private individuals asking for specific information upon sanitary matters—how to sewer premises; trap a fixture; make a cess pool; construct a sink drain; get rid of an offensive condition maintained by a neighbor; when measles, scarlet fever, and diphtheria are contagious; when they are not; when children can be sent to school after having had these diseases; how to test their water supply; where to dig a new well, and a thousand-and-one questions, all seeking for information for the better protection of the family against the dangers which come from unsanitary conditions and environments.

In no case is a letter ignored or fails to receive an answer unless it is anonymous. Believing that one of the chief functions of a state board of health is to educate the people in sanitary matters, we have made it a point to give careful consideration to all correspondents making inquiries for sanitary knowledge.

REGISTRATION OF VITAL STATISTICS.

The Board continues to have charge of the registration of births, marriages, divorces and deaths, and has recently issued the thirteenth annual report. For several years these reports have constituted an annual volume of nearly 300 pages, composed mostly of

statistical tables from which, after a serious of years, most valuable facts and conclusions may be deduced relating to the movement of the population, and particularly concerning causes of death, as well as indicating localities in which sanitary work is necessary in order to decrease an abnormally large death rate. The value of these statistics in many directions cannot be estimated from the reports of a single year. It is only after the tables referred to have covered a serious of years that their greatest usefulness is attained.

The registration of births is incomplete, although a better return is now made than ever before. The records of marriages and death may be considered correct, or as nearly so as is possible to attain under any system of registration.

The last legislature made a change in the law relating to the issuing of burial permits in the cities of the states, so that at the present time the return is made to the board of health instead of the city clerk, and the burial permit issued by the board. All the facts, however, are transmitted to the city clerk for record. The object of this law is to secure a more correct return of the causes of death in our cities, and to more readily detect any false statement that may be made in connection therewith, and also, if necessary, to investigate the alleged cause of death.

Arrangements are now being made for filing all the records of vital statistics returned to this office, in a fire proof room in the State Library Building. These records have become quite voluminous and of very great importance, since, in many instances, they are the only legal records in existence of the individuals to whom they refer.

THE SECRETARY'S REPORT.

Under this heading in the following pages are included, several papers and reports by the Secretary, as well as some valuable contributions and selected articles relating to public sanitation.

We submit these reports and papers for the purpose of giving the people of New Hampshire, a more extended knowledge in certain branches of sanitary science.

SECRETARY'S REPORT.

TUBERCULOSIS.

An unusual interest is being taken in tuberculosis, because it has been proven that pulmonary consumption in the human family and tuberculosis in animals are precisely the same disease, and that this disease is a communicable one as it is also largely, if not wholly, a preventable one.

Tuberculosis, which is more frequently called consumption, is the most fatal disease known to mankind. It is, perhaps, more widely spread over the civilized areas of the globe than any other malady. Its entire career is so insidious and deceptive that the public mind is never awakened to the enormity of the disease, and so, without excitement, and heretofore without any attempt towards its restriction, it has been allowed to silently pursue its way, slaughtering its thousands and tens of thousands, annually. The last census of the United States shows that there are in this country over 100,000 deaths annually from this disease, a number far in excess of that reached by any other cause of mortality.

Our own state is by no means a favored one. Indeed, it is true that the eastern portion of this country, including the New England states, has a high mortality from consumption. The death records in this state for the past ten years, from 1883 to 1893, inclusive, show 8,510 deaths from pulmonary tuberculosis during that period. The total mortality for the same

period was 75,503, which, compared with the death rate from consumption, shows that a little less than every ninth death was caused by that disease. If to the figures already given were added deaths from other tuberculous causes, it is quite probable that it would show an annual death rate from this disease in New Hampshire approximating 1,000 persons. These figures are given in the briefest possible manner in order to present an idea of the extent of the disease under consideration. Very few people realize the widespread character and the terrible mortality that accompanies tuberculosis. All the deaths which occur in the state from other contagious and infectious diseases added together would not equal the number caused by consumption.

A diagram showing the more prominent causes of deaths in this state for the past nine years gives a graphic view of the relative importance of consumption among twelve of the most fatal diseases which we have.

A single case of smallpox alarms a whole community, while a few cases are enough to interfere with business, and even cause some people to leave the infected community; yet, we have had but four deaths from smallpox in New Hampshire in a decade.

Scarlet fever, which frightens the public upon its appearance, has, by means of isolation and disinfection, been reduced to an annual average of twenty-five deaths for the period named.

Diphtheria, one of the frightful diseases with which we are still too often called upon to meet, stands at the foot of this list.

Typhoid fever, which through sanitary work has been greatly reduced in recent years, is the next in order; and so we go up the list till we reach the long, black line at the top which represents consumption, a controllable disease uncontrolled.

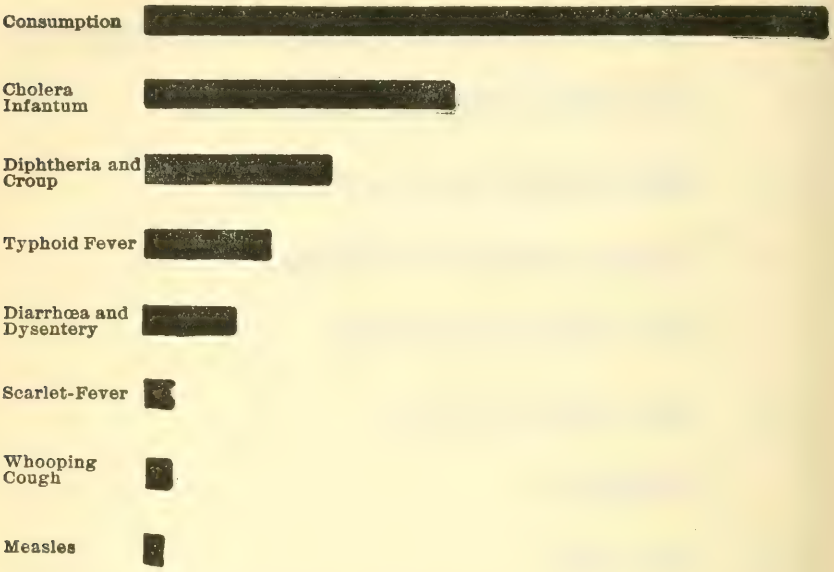
Diagram No. 1,

Showing the relative mortality in New Hampshire from twelve of the most prominent causes, from 1884 to 1892, inclusive.



Diagram No. 2,

Showing the relative mortality from the leading preventable diseases in New Hampshire, from 1884 to 1892, inclusive.



The relation which the leading communicable and preventable diseases bear to each other is represented in diagram No. 2. It commences with measles, and is followed by whooping cough, scarlet fever, diarrhœa and dysentery, typhoid fever, diphtheria and croup, cholera infantum and consumption.

We present these diagrams to give a better and more logical idea of the relations which these diseases bear to each other as represented by the actual death rate of the state. These diagrams are drawn to a scale so that a proportionate relation of the diseases named is accurately represented.

Diagram No. 3.

Diagram showing percentages of deaths from consumption, from 1883 to 1893 inclusive, to the total living population of the same age period.

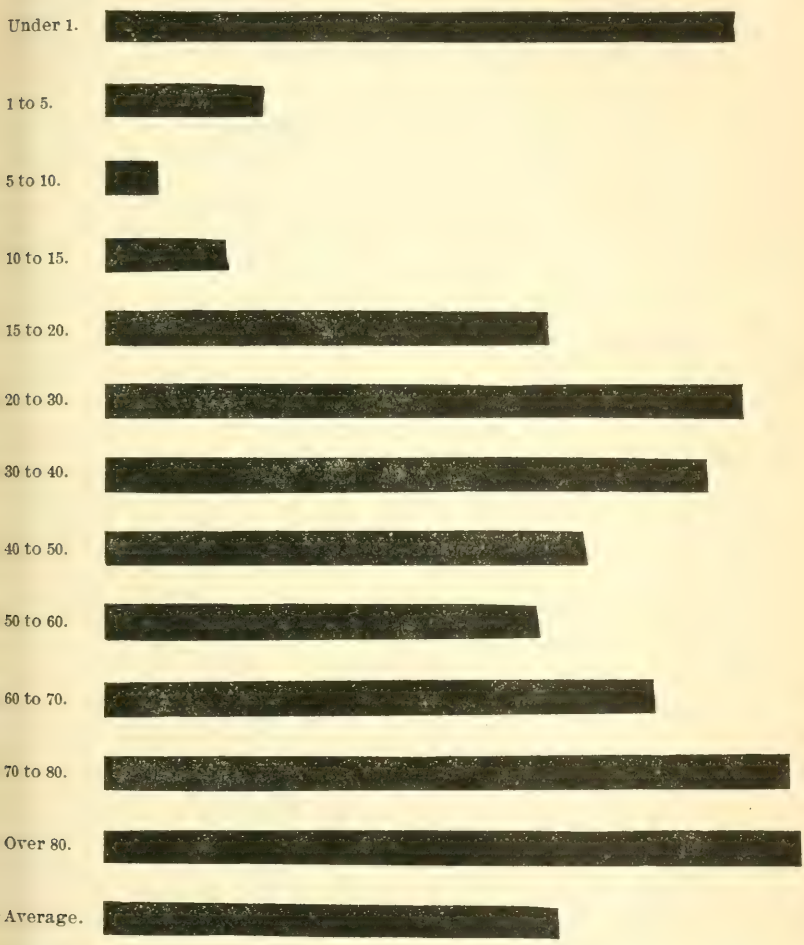


Diagram No. 3 presents the percentages of deaths from consumption in a most forcible manner. These rates are calculated upon the living of the same age groups as compiled from the census of 1880 and 1890, and therefore must be approximately correct.

TABLE No. 1.

Consumption.—Age, Month, and Sex, by Years.

January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Unknown.	Total.	Sex.	Under 1.	1 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Unknown.	Total.
30	22	37	39	26	26	20	18	20	21	27	30	9	325	1883—Males.....	....	16	2	2	26	72	52	44	29	36	26	7	13	325
43	33	47	51	38	36	30	44	34	54	39	43	10	502	Females.....	....	14	3	22	53	153	84	44	33	34	38	12	12	502
28	24	28	30	43	37	30	22	24	36	26	26	1	355	1884—Males.....	7	5	4	6	26	95	54	40	35	29	36	7	11	355
51	37	40	44	58	40	42	29	41	43	42	44	2	513	Females.....	9	7	6	15	68	137	94	56	36	32	28	15	10	513
25	37	38	34	39	44	27	26	26	24	34	22	1	377	1885—Males.....	19	8	1	2	34	84	67	50	43	38	20	8	3	377
46	45	49	45	44	52	37	28	28	41	31	33	1	480	Females....	12	6	3	10	57	134	92	57	33	37	22	11	6	480
45	43	38	34	31	22	20	36	25	23	22	28	..	367	1886—Males.....	10	12	3	3	23	95	70	50	33	41	14	10	3	367
33	39	39	47	37	36	42	36	29	41	33	29	1	442	Females.....	3	12	4	8	53	138	82	41	34	33	23	8	3	442
26	30	23	28	38	17	27	31	25	28	22	21	..	316	1887—Males.....	11	3	....	6	22	74	55	46	45	26	17	8	3	316
46	33	40	39	44	44	31	29	29	45	30	37	..	447	Females.....	4	9	7	9	51	117	90	55	33	28	29	13	2	447
33	18	27	23	33	27	24	25	25	22	22	35	1	315	1888—Males.....	9	10	1	9	18	87	58	28	38	22	23	7	5	315
33	34	37	32	39	55	37	33	30	30	31	35	1	427	Females.....	15	10	3	10	51	132	79	43	24	33	19	8	....	427
20	36	24	26	17	19	22	29	16	29	22	20	1	281	1889—Males.....	9	7	3	3	22	56	51	33	34	31	26	2	4	281
34	27	45	28	28	29	41	27	31	23	26	31	..	370	Females.....	5	8	4	19	37	91	69	44	22	34	27	8	2	370
35	26	50	28	32	34	28	31	26	25	30	36	1	382	1890—Males.....	13	6	3	5	17	83	74	57	41	38	31	12	2	382
55	36	31	46	42	38	39	27	30	27	33	39	..	443	Females.....	12	11	4	11	44	117	82	56	24	34	32	11	5	443
33	24	27	32	24	26	21	22	32	21	29	18	2	311	1891—Males.....	11	10	2	5	23	78	60	46	36	16	15	4	5	311
36	30	25	34	43	35	39	26	30	31	19	36	..	384	Females.....	8	9	7	12	47	96	71	43	31	21	28	6	5	384

30	32	32	29	23	19	32	16	24	27	26	25	3	318	1892--Males.....	5	6	1	4	22	67	62	36	39	37	22	10	7	318
37	37	38	29	41	31	44	41	29	33	40	18	..	418	Females.....	9	6	1	18	44	111	88	48	28	34	19	10	2	418
24	23	36	36	26	22	33	28	33	25	30	34	..	350	1893--Males.....	17	7	3	4	22	88	65	48	39	34	15	6	5	350
35	18	26	43	30	32	35	26	34	34	29	45	..	387	Females.....	15	4	3	13	32	116	75	43	26	30	20	6	4	387
*329	315	360	339	332	293	284	284	276	281	290	295	19	3697	Total.....	111	90	20	49	255	879	668	478	412	348	245	81	61	3697
449	369	417	438	444	428	417	346	345	402	353	390	15	4813		92	96	45	147	537	1342	906	530	324	350	285	108	51	4813
778	684	777	777	776	721	701	630	621	683	643	685	34	8510		203	186	65	196	792	2221	1574	1008	736	698	530	189	112	8510
														[group.														
														Per cent. to age	3.25	.77	.21	.62	2.32	3.36	3.14	2.45	2.19	2.85	3.63	3.71	....	2.35

The great mortality in children under one year old is most forcibly illustrated by the first line in diagram 3. Following this up to fifteen years of age there is a marked exemption from the disease. From the latter age to the extreme of life the variation is not so great and the mortality is large, as will readily be seen. These figures most forcibly controvert an opinion which is somewhat general among people, to wit: that the greatest fatality occurred in persons between twenty and forty years of age. While it is true that there are a greater number of deaths during that period of life, because there are a greater number of living persons of the same age, it is not true that it is relatively the most fatal period of existence. On the other hand it is true that the greatest mortality from consumption occurs in persons over seventy years of age. It is not necessary to elaborate upon the figures which are shown in table 1 and illustrations in diagram No. 3, for they are in themselves the strongest kind of evidence.

Table No. 1 represents the deaths in New Hampshire from consumption by age, month, and sex, from 1883 to 1893 inclusive.

This table represents an interesting study of the ravages of this disease in many ways. It will be seen in studying the mortality by months that the variation is not great, and that seasons have very little to do with the mortality of this disease.

Under ages the statistics are still more interesting. The percentage of deaths by age groups to the living of the same ages is shown at the bottom of the table.

The foregoing diagrams and table are given solely for the purpose of impressing upon the people of the state the alarming magnitude of this disease with its various phases so far as it relates to age and sex.

The Vermont Agricultural Experiment station, in July last, issued a bulletin on Bovine Tuberculosis, in which the whole subject is so well presented that we quote extensively from it as follows:

GENERAL DISCUSSION OF THE DISEASE.

Tuberculosis is the general name for a class of diseases, of which consumption in the human family is a common type. It is variously named* according to its location in the body and the character of its host. It attacks man, the domestic animals, and sometimes wild beasts (particularly if in captivity). Among domesticated animals, cattle, fowl, and swine more readily contract the disease than horses, sheep, dogs, or cats. The latter easily succumb, however, if inoculated either intentionally or accidentally. There is no animal known to be proof against the disease.

I. PREVALENCE AND HISTORY.

Human. The ravages of tuberculosis in the human family are far greater than are those of any other disease. The death rate from consumption, which is but one of its many forms, is about one in seven. In all its forms it is said to contribute to the death of one in every four, and the records of human post-mortems indicate that one in two has had the disease and either died of it or had its progress arrested.

When conditions have favored its spread, the death rate from tuberculosis has been as high as 50 per cent. of all mortalities. Many of the fatal bowel troubles of infants have their origin in tubercular infection. An article in the Archives de Medicine says that "of the population of the globe, three millions die annually of consumption." It has been well said that, "if the 5,490 deaths from tuberculosis which occur every year in the city of New York could be brought together in an epidemic lasting but one week, no smallpox, cholera, or yellow fever scare would approach the panic which would be thus created, . . . if we take the whole civilized world and compare with the tuberculosis mortality, all the accumu-

*Some of the more common names are: *Human; Lung;* consumption, pulmonary consumption, tuberculosis, consumption, phthisis, pulmonary phthisis, tubercular phthisis, pulmonary ulceration, quick or galloping consumption (acute miliary tuberculosis), old fashioned consumption (chronic tuberculosis;) *Bowels;* consumption of the bowels, many forms of chronic diarrhœa, cholera infantum and cholera morbus; *Nervous System and Brain;* tubercular meningitis, acute hydrocephalus; *Skin;* anatomical tubercle, lupus and scrofuloderma; *Bone and Joints;* hip-joint disease, white swelling of the knee; *Glands;* tubercular adenitis: *Abdominal Cavity;* tubercular peritonitis; tubercular nephritis; *Animal;* same as in human, together with pining, wasting of the lungs, knots, kernels, grapes, angleberries, bovine tuberculosis, pearl disease, pearlsucht, also some forms of nymphomania, satyriasis, etc.

lated deaths from war, famine, plague, cholera, yellow fever, and smallpox, the latter are comparatively very insignificant." *

Bovine. The lack of systematic professional inspection of live and slaughtered animals, as well as the actual variations in the extent of the disease in different localities, gives us somewhat contradictory data regarding the prevalence of bovine tuberculosis.

Probably many of the estimates given by various authors are based on faulty or insufficient data. The following examples may serve to some extent to indicate its prevalence. The extremes are wide, being from 0.02 per cent. (among 2,273,547 cattle, mostly steers, killed in the meat inspection districts of the United States from May 15, 1891, to March 1, 1892,† to 60 to 70 per cent. at Hildesheim, Hanover, according to Haarstick). In a large number of German abattoirs it is stated that 6.9 per cent. of the cows, 3.6 per cent. of the steers, 2.6 per cent. of the bulls, and 1 per cent. of the young stock were tuberculous‡. Of 1,270,604 animals slaughtered in German abattoirs from October, 1888,, to October, 1889, 26,352 or 2 per cent. were tuberculous§. Careful post-mortems by skilled veterinarians showed 12 per cent. of tuberculous animals out of 12,000 slaughtered in England as affected or exposed to contagious pleura pneumonia (a disease entirely distinct from tuberculosis) ‖. In seventeen counties in New York state the inspectors of the state board of health found 3.4 per cent. tuberculous cattle out of 20,000 inspected¶. Cattle slaughtered at Baltimore were found tuberculous to the extent of from 2.5 to 3.5 per cent.* while of 1,153 cattle from the Eastern states (mainly New England) slaughtered at Brighton, Massachusetts, 52 or 4.5 per cent. were tuberculous†. Salmon and Smith state that "it is not far from the truth to assume . . . that one of every fifty head of cattle in the more densely populated areas of Europe and America is tuberculous"‡. Dr. Salmon states yet later, however, that "the

* Law. Cornell University Experiment Station, Bul. No. 65, p. 105.

† Salmon and Smith, Special Report on Diseases of Cattle, etc., Bureau of Animal Industry, United States Department of Agriculture, 1892, p. 399.

‡ Reported by Law. *Ibid.* p. 107.

§ Report of Imperial Health Office, Berlin. Vol. 7.

‖ Annual report for 1892 of Dr. G. T. Brown, Director of Veterinary Department of the Board of Agriculture of Great Britain.

¶ Country Gentleman, January 18, 1894.

* Sixth and Seventh Reports Bureau of Animal Industry, p. 51.

† Boston Board of Health. Report of Dr. Alex Burr, Inspector, etc., for 1890.

‡ Salmon and Smith, *Ibid* p. 399.

ideas in regard to the prevalence of tuberculosis have been radically changed by the facts brought out in using tuberculin*."

The fine showing of the Western abattoirs is mainly due to the fact that the beeves killed there are grown out of doors, are slaughtered while still young, and because as a rule only healthy animals are shipped to and accepted by them. On the other hand, Eastern and foreign abattoirs more often deal with stall-fed animals and with old cows, in both of which the proportion of disease is higher.

History.

Tuberculosis is no new disease. Both the human and bovine forms have been known for many centuries, under a great many different names. Four hundred years before Christ, Hippocrates† described the abcesses and ulcers of the lungs, which characterize the disease of to-day. As early as the Middle Ages, the animal type of the disease was considered contagious and the flesh discarded. Various theories regarding its cause have been advocated and shown untenable. Until recently the theory of heredity was considered most probable, but it is now definitely proved that its true cause is bacterial.

II. ESSENTIAL OR EXCITING CAUSE.—THE BACILLUS TUBERCULOSIS.

Although infection by inhalation (breathing), by inoculation (through wounds, etc.), and by feeding was definitely proved by Villemin ‡ in 1865, and later by Cohnheim §, Toussaint‖ and many others, the true cause of the infectiousness of tuberculous matter was not found until 1882. On March 24th of that year, Dr. Robert Koch of Berlin, Germany, read a paper before the Physiological Society of that city, in which he announced the discovery of the germ causing the disease ¶. He named this germ *Bacillus tuberculosis*. The most painstaking care was used in verifying the facts before they were given to the world. Koch demonstrated the presence of the germ in the sputa (spittle) or tubercle (a round,

* Breeders' Gazette, Chicago, June 14, 1893.

† Littre's edit. of Hippocrates. V. p. 675, VI. p. 173, VII. p. 73.

‡ Etude sur la Tuberculose.

§ Ubertragbarkeit d. Tuberculose, Berlin, 1877.

‖ Compt. Rend. XCIII.

¶ Berliner Klin. Wochenschrift, XV, 1882; also Mittheil aus dem Kaiserlich-gesundheitsamte, "Aetiologie der Tuberculose."

nodular mass of diseased matter, small or large, characteristic of tuberculosis), of over a hundred cases of consumption, and successfully inoculated nearly five hundred lower animals, producing in them the same disease. The concluding sentence of his paper has yet to be disproved: "We can with good reason say that the tubercle bacillus is not simply one cause of tuberculosis, but its sole cause, and that without tubercle bacilli you would have no tuberculosis."*

*It may not be out of place to define bacteria and to describe briefly the present status of the germ theory of disease. All matter, soil, air, water, and living beings, vegetable and animal, is pervaded with many forms of minute vegetable life. They belong to several more or less distinct classes or families, but, on account of their microscopic size, they are usually grouped under one name, micro-organisms. Bacteria, fungi, moulds, yeasts, etc., are types of this low order of plant life.

Bacteria (also called microbes and germs) are microscopic plants consisting of single cells or sacs, containing protoplasm (the vital substance by which the process of nutrition, secretion and growth go forward) reproducing by division and by the production of single spores (a small grain analogous to seed in flowering plants.) Many are capable of motion. They are at present provisionally divided into groups (genera) based mainly upon their form. The principal groups are the globe-shaped bacteria (micrococcus), the rod-shaped bacteria (bacillus), and the spiral or cork-screw-shaped bacteria (spirillum). Each of these has many hundreds of species. Each originates only in a germ of its own species, and is never spontaneously generated. Warmth, moisture, and organic matter favor bacterial growth. Some species are readily destroyed, others, particularly in the spore form, are very resistant even to extreme degrees of heat or cold. Sunlight, air (in time), the temperature of boiling water, and certain chemicals are generally destructive to germ life. Fungi, moulds, and yeasts differ from bacteria mainly in their methods of reproduction. Many of the common operations of daily life, such as the raising of bread (in part), the souring of milk, the ripening of butter and cheese, the making of vinegar and the nitrifying of organic matter in the soil, are due to bacterial action.

Disease also is often the result of the growth of bacteria in the bodily tissues. The pathogenic (disease producing) bacteria are mainly micrococci and bacilli. The casual relation of micro-organisms to disease is proved by the series of tests usually called "the four postulates of Koch:"

1. "The germs must be found in the blood lymph or diseased tissues of man or animal suffering from or dead of the disease.

2. "The germs must be isolated from the blood lymph or tissue and cultivated in suitable media outside the animal body. These pure cultures must be carried on through successive generations of the organism.

3. "A pure cultivation thus obtained must, when introduced into the body of a healthy animal, produce the disease in question.

4. "In the inoculated animal the same germs must be found again."

This chain of evidence has shown that the causes of most contagious diseases are bacterial.

The germ theory of disease is that these minute plants grow in the body, that the products of their growth are poisonous, and that a definite disease is due to the effects of the poisons produced by a definite species of germ.

This germ (bacillus tuberculosis) is a parasitic, vegetable microorganism, which under the microscope is seen to be a minute rod with rounded ends, usually slightly curved. It is about ten times as long as it is broad, and measures on the average about one ten-thousandth of an inch in length. It occurs singly, in pairs, or in chains of from three to six. It probably does not reproduce itself by spores. This germ lives in the animal body and thrives best at a little above the normal temperature of the human body. It has great vitality, resisting heat, cold, moisture, drought, decay, and often the process of digestion. Its virulence is not lessened by drying at temperatures below 150° F. A short exposure at 212° F. or a longer continued heating at from 160 to 170° F. is sufficient to kill the germ. These temperatures are not always attained in the interior of a piece of cooking-meat, and a rare steak or roast, if from a tuberculous animal, may contain live germs capable of causing the disease in the person eating the meat. Milk may be used with safety, if heated for an hour at about 160° F. A higher temperature would be desirable, but it coagulates the albumen, gives the milk a boiled taste, lessens the digestibility, and increases its tendency to constipate.

The tubercle bacillus has lived for many weeks in ice and been found virulent on thawing. Since moisture and decay do not affect it, wells, drinking troughs, and burial grounds (human and animal), in short, wherever tuberculous matter has been exposed or placed, are all liable to be infected. The germ has been found in earth worms which had fed on tuberculous tissue, and it is evident that they may be factors in the spread of disease in bringing buried tuberculous matter to the surface.

Sources of Infection.

There are three methods of infection :—

1. By inhalation (breathing the germs into the lungs).

2. By ingestion (swallowing the germs).

3. By inoculation (the entrance of the germ by some channel other than the lungs or stomach, as, for instance, through a cut or wound).

There are three general sources of infection :—

1. The dust of the dried sputa of consumptives or other tuberculous matter, either inhaled or swallowed.

2. Contact with the tuberculous material of those suffering from the disease, thus becoming infected either by inhalation, ingestion, or inoculation. (For example, in kissing a tuberculous person there might be danger of either ingestion or of inoculation with the tuberculous sputa).

3. The meat and milk of tuberculous animals. (The third source of infection is considered at length elsewhere in this report.)

The sputa of consumptives containing tubercle bacilli is freely strewn around our streets and buildings. Since the virulence of the germ is not lessened by drying, dust is necessarily a common and omnipresent source of infection. The dust from our streets, stores, dwellings, and places of assembly, particularly where tuberculous people live or congregate, is infectious. The dried sputa from the handkerchiefs, the beds and bedrooms of consumptives, and the mangers of tuberculous cattle are particularly rich with the germs. This is the main source of infection to human beings, one to which everyone is exposed. It is not too much to hope that this danger will grow less when more general destruction or disinfection of sputa is observed.

If this infectious principle is all about us, why does not every one die of tuberculosis? Many do thus die. As already noted the death rate from but one form of the disease is one in seven, and from all forms, nearly one in four.

Yet on the other hand we have powerful allies in pure air and sunlight. The harmless germs greatly out-number those that produce disease, the war between the various species is one of extermination, and myriads of the disease-producing germs are thus destroyed. There are, moreover, natural forces in the body which are antagonistic to germ life. They are the real causes of immunity (the natural organized powers of bodily resistance to the attack of disease) against contagious diseases. There are three main theories explaining this matter. Metschnikoff* claims that the tissue-cells of the body, particularly the white blood corpuscles, attack and destroy micro-organisms and that in them the animal body possesses a formidable means of resistance and defense against these infectious agents. Buchner† and others consider that the

*Lecture to Institut Pasteur, Dec. 29, 1890.

†Eine neue theorie über Erzielung. Immunität gegen Infectionskrankheiten Munich, 1883.

blood serum and tissue juices have germicidal properties. On the other hand, Lister* claims for the bodily tissues a certain standard of vitality by which they are able to ward off the attack of disease-producing germs. While this standard is maintained the attack is in vain, but when the infection and reduced vitality occur together there is chance for disease. The germicidal action of healthy gastric juice is universally admitted. Immunity against recurring attacks of the same contagious disease is explained in two ways, one by the exhaustion of the peculiar food of the specific germ in the first attack, the other by the existence in the body of sufficient quantities of the self-made germ poison to kill all new comers of the same species.

III. ACCESSORY OR PREDISPOSING CAUSES. CONDITIONS FAVORING THE DEVELOPMENT OF TUBERCULOSIS.

There are certain conditions of birth and modes of life which are potent factors in the spread of tuberculosis. The tubercle bacillus alone is its true exciting cause, but there are conditions so favorable to its development that they are well-termed "accessory causes," although strictly speaking they are not causal. The kernel of corn is the essential cause of the growth of the corn plant, and soil, moisture, and warmth are accessory causes furnishing conditions favoring its development. The kernel could only grow with great difficulty, if at all, without their help; but on the other hand, there could be no growth whatever, no matter how rich the soil or how favorable the season, unless the seed were planted. Similarly in disease the malady develops only when the germ is present, but the circumstances of individual cases, bodily conditions and surroundings, etc., are of the greatest importance in determining the result.

Among the conditions favoring the development of tuberculosis, if the tubercle bacillus is present, are:—

A. Hereditary predisposition.

B. Unhealthy surroundings; poor ventilation; uncleanly, dark, damp, hot and cold stabling; soiling system; lack of exercise; climatic influences.

C. Faulty feeding; under feeding; over feeding; feeding on unwholesome or indigestible materials; overproduction.

*Quart. Jour. Micr. Soc. London, 1881, n. s. XXI p. 330-342.

D. Faulty breeding ; in and in-breeding ; early, late, and frequent breeding ; intensive breeding ; lack of constitution.

E. Ill health. Temporary predisposition.

F. Physical conformation.

A. Hereditary Predisposition.

For many years consumption was considered a hereditary disease, transmitted from parent to offspring. It was said to run in families. It is now known to be but rarely hereditary, the proved cases of the infection of the fœtus in the womb being less than a dozen. There are on record but six cases of indubitable congenital tuberculosis in calves.*

It is not strange that this belief should have prevailed before the discovery of the germ. The well-known prevalence of tuberculosis in certain families is mainly due to two causes ; first, to the concentration of the germs in the family home, and second, to a *lack of resistance, an inherited predisposition of this disease.* A person not thus susceptible may live uninfected in a family whose every member contracts the disease. All breathe the germ laden air, but the unfortunate family are a fruitful soil for its growth, while the stranger is not. Such facts are of common occurrence, and are best explained upon the ground of hereditary predisposition. This inherited tendency is found in cattle as well as in human beings. Dr. Law says : "In 1877 I recognized the existence of tuberculosis in the Jersey herd of Burton Bros., of Troy, N. Y. The worst were slaughtered, but some incipient cases in young animals were turned out in a pasture by themselves, where they passed the summer in apparently robust health, but they began to droop when they returned to the barn in the fall. I again visited the herd and picked out eleven diseased animals and had them killed, when Dr. James Burton informed me that I had destroyed every representative of a certain family, not even a grade having been left. From that time on there was no more trouble with tuberculosis in that Jersey herd."†

*Jour. Comp. Med. and Vet. Arch., Oct,, 1893, p. 240.

†Law, Tuberculosis in Animals, Report New Hampshire State Board of Agriculture, 1892, p. 16. Also reported in Cornell Univ. Expt. Sta. But. 65 p. 112.

B. Unhealthy Surroundings.

Imperfect ventilation has much to do with spreading infection. This is because of the repeated breathing of the same air, full of dust and germs, and because of the concentration of the bacteria within a small place. The lack of oxygen lowers the vital powers of animal or man and renders them less able to cope with the germs. An open air life prolongs the life of the consumptive. Tuberculous cattle which are unthrifty in the barn are often apt to pick up on pasture, and to run down again on returning to the barn in the fall (as in the case of the Burton herd cited above). Of 2,273,547 fat cattle inspected by the officers of the Bureau of Animal Industry at Western abattoirs, only 482 (.02 per cent.) were tuberculous, while out of 54,158 cows from city and country barns 669 (1.23 per cent.) were tuberculous.* There were fifty-seven tuberculous animals raised in confinement to one whose life had been spent out of doors. Other data, American and European, might be cited, showing the relatively high percentage of tuberculosis in stabled cows.

Dark, damp, and hot or cold stables are often partly responsible for the spread of tuberculosis. Light is a germicide, darkness a germ-preserver. Light favors the formation of the red corpuscles of the blood. When their numbers decrease, the offices of the blood, including its germicidal action, are impaired and the bodily vigor lessened. The effect is the same as if too little oxygen were inhaled, *i. e.*, equivalent to the effects of poor ventilation. Dampness favors colds, which, as is well known, are often the beginning of consumption. They make the soil more fertile for the growth of the seed. Hot stables make the animal tender and liable to catch cold. Cold stables, or turning out cattle in bitter weather, is apt to bring on colds, bronchitis, and pneumonia, which prepare the way for tuberculosis of the lungs.

Soiling cattle, their confinement with little or no exercise the year round makes unending the conditions already cited which otherwise last but half the year. Local circumstances sometimes compel this method of dairying, but cattle thus kept should be watched with great care for indications of disease.

*Salmon and Smith, *Ibid.*, p. 399.

Climate has its influence in spreading tuberculosis. A moist, changeable climate favors its development, while dry and rare air and uniform temperature tend to suppress it. The high table lands of the far western states afford relief to the human consumptive and possibly to the animal. Bovine tuberculosis is said to be unknown in those regions, and there are those who believe that in its earlier stages its course may be arrested by removal to high altitudes.

C. Faulty Feeding.

It is self-evident that underfeeding and the use of unwholesome or indigestible food lowers the vitality and hence the resistant powers of the animal. Overfeeding, either as gluttony or in the use of too rich a ration, or irregular feeding, are apt to cause indigestion and dyspepsia, thus predisposing to the disease. Heavy, stimulating feeds lead to over-production. The high production of milk and butter places the animal under a severe strain and tends to weaken her constitutional vigor and increases susceptibility.

D. Faulty Breeding.

*In and in-breeding** intensifies both good and bad traits. It concentrates desirable lines of personal and family character, but, unless carefully and intelligently managed, is liable to weaken constitution and conduce to disease. Line breeding, the most desirable type of in and in-breeding, is that by which our improved breeds of domestic animals were originated and perfected, and, when due regard is given to ancestral health and vigor, is often advantageous. Incestuous breeding, however, is to be condemned for it increases susceptibility, and often produces unsatisfactory results. Cattle thus inbred are proverbially liable to tuberculosis.

*In and in-breeding is usually considered to mean the pairing of close relations. Breeders differ as to degree of relationship covered by the term. It may mean only the coupling of animals of the precise same blood (brother and sister) or the frequent pairing of relations. Miles calls attention to the confusion of definitions, and says: "If the terms in-breeding, close breeding, and interbreeding are used to indicate the breeding together of closely related animals in a single instance, or at long repeated intervals, the term in and inbreeding could then be used with greater exactness to indicate the frequent repetition of the process." (Stock Breeding, p. 138.) For the present purpose the distinction may be drawn between incestuous breeding (brother and sister, parent and offspring, etc.,) and line breeding (within the limit of a family, and for a particular type of animal, generally without regard to relationship, not of necessity incestuously bred, but closely bred).

Early, late, and frequent breeding are all liable to sap the bodily strength. The nourishment which should restore the maternal vigor is diverted to the development of the unborn offspring and to the making of milk. If bred too young, the mother's growth is stunted, and the offspring is apt to be weak and puny; if bred too late or too often, the constitution suffers from the strain. All such are probably more susceptible to infection than if bred with more care.

Intensive breeding, the mating of animals of great milking strains with the hope of yet greater performance in the offspring, is attended with the dangers already cited due to the artificial nature of the animal, and needs to be done with intelligence. Breeding from animals themselves tuberculous is, of course, to be condemned. This itself is not apt to produce the disease, but the offspring have decided predisposition.

Tuberculosis is not confined to any breed, nor is any breed exempt from it.

The modern dairy cow is a highly artificial animal. She has been compared to a machine for the conversion of raw material, fodder, into the finished product, milk. The intelligent engineer works his machine to the full extent of safe production. The dairy cow should be similarly handled, and an undiminished strength of constitution made the measure of her production. The better types of the modern dairy cow are striking examples of ability, energy, and intelligence in lines of breeding and feeding. These are by no means to be abandoned. *We argue for a due regard for the danger which attends high production, for healthy surroundings, and vigorous ancestry, and for a watchful, intelligent care to weed out and keep out disease.* The valuable qualities of our best dairy cows may thus be preserved and transmitted, uncontaminated, to future generations.

E. Ill-health.

Sickness of any kind, acute or chronic, favors infection. This is particularly true of such as irritate the organs of respiration (colds, bronchitis, pneumonia, etc.), or interfere with digestion (dyspepsia, indigestion, diarrhœa, etc.) An enfeebled system less vigorously resists attack. An irritated respiratory tract is fertile surface for the growth of the tubercle germ. The healthy gastric

juice, being acid, kills most germs, but an unhealthy stomach with weakened or diminished secretions offers less resistance to the passage of bacteria to the alkaline bowel where all the conditions are favorable to their growth and multiplication.

Temporary predispositions to tuberculosis occur in all individuals, human or animal. A hard cold, an overworked condition, or a fit of indigestion renders one temporarily much more open to infection than usual. Our bodies are continually at warfare with the germs. In health we conquer, but if the vitality be lowered we become for the time being susceptible. Since we cannot predict when infection and lowered vitality will coincide in ourselves or our animals, it is desirable to avoid both so far as possible.

F. Physical Conformation.

Cattle with narrow chests, light barrels, and long legs are, because of their build, apt to be predisposed to tuberculosis. Their circulation is generally poor, and they are apt to be poor feeders and unthrifty.

IV. SYMPTOMS OF BOVINE TUBERCULOSIS.

Tuberculosis in cattle sometimes assumes the acute form, but is usually of the chronic type, lasting for years. Mankind attacked by either form generally shows it by failing health. Cattle, on the contrary, seldom give external evidence that they have the disease until it is far advanced. The effects of the disease are too slight at first to materially interfere with the functions of the organs involved. The animals may and do live for years with decided tubercular lesions, and yet appear healthy, fattening readily and yielding large amounts of apparently normal milk. In the acute form, however, and in the last stage of the chronic, fever and wasting of the body occur. The marked difference in outward evidences of human and bovine tuberculosis lead many to doubt its existence in apparently healthy animals. The public slaughter of tuberculous cattle is always accompanied by a storm of protests from bystanders, which are generally quieted by the post-mortem results.

Although difficult to detect in its early stages, except by the use of tuberculin, the symptoms of tuberculosis are quite marked when the disease is well advanced. The following concise description of advanced bovine tuberculosis is taken from the Special Report of

the Bureau of Animal Industry on "Diseases of Cattle and Cattle Feeding," page 405. Lydtin quotes the following description of the disease as taken from a Swiss sanitary order:

"A dry, short, interrupted, hoarse cough, which the sick animals manifest especially in the morning at feeding time, still more after somewhat violent exertion. At first these animals may be full-blooded and lay on a considerable amount of fat when well fed. As the disease progresses they grow thin and show more and more those appearances which indicate diseased nutrition, such as staring, lustreless, disheveled coat; dirty, tense skin, which appears very pale in those regions free from hair. The temperature of the skin is below normal. The loss of fat causes sinking of the eyes in their sockets. They appear swimming in water and their expression is weak. The cough is more frequent, but never or very rarely accompanied with discharge. The body continues to emaciate even with plenty of food and a good appetite, so that the quantity of milk is small. At times in the early stages of the disease, still more in the later stages, the diseased animals manifest considerable tenderness when pressure is applied to the front or sides of the chest, by coughing, moaning, etc. Often all symptoms are wanting in spite of the existence of the disease."*

V. LESIONS OF BOVINE TUBERCULOSIS.

It is not a simple matter for the non-professional to detect bovine tuberculosis, and in many cases the trained veterinarian cannot determine its presence by physical examination. More definite knowledge may be obtained by the following means:

1. Examination of the sputa and milk with the microscope for the tubercle bacillus.
2. Inoculation of smaller susceptible animals (rabbits, guinea-pigs, etc.), with the suspected material.
3. Slaughter and post-mortem.
4. The injection of tuberculin.

Dismissing the first two means as not within the scope of this

*After mature consideration and consultation with the Board of Control of the Station and the State Board of Agriculture (acting as Cattle Commission) it was deemed inadvisable to attempt to describe the symptoms of bovine tuberculosis more fully than above, on the ground that they were so obscure and variable, except in advanced cases, that any description would be apt to be more misleading than instructive.

bulletin, the third may be used either alone or as confirmation of the fourth. In either case it is desirable to be able to recognize the lesions (changes produced in the texture of the organs by the action of disease) of tuberculosis.

The organs usually affected are:—

1. Breathing: The lungs, throat, and their glands.
2. Digestion: The stomach, intestines, mesenteric glands.
3. Abdominal glands and urinary organs: The liver, spleen, pancreas, kidneys, and bladder.
4. Reproduction: The womb, ovaries, and fallopian tubes.
5. Lactation: The udder and its lymphatic glands.
6. The lymphatic glands in general.
7. Serous membranes: pleura, peritoneum, pericardium.
8. The skeleton: bones, joints.

Sometimes but one organ is affected, sometimes several, the symptoms varying with the location of the disease. In the former case the disease is called localized, in the latter generalized tuberculosis.

The lungs and bronchial glands are most commonly affected, then the intestinal canal. The distribution of the disease in the various organs is well shown in the following tables of post-mortem examinations copied in a condensed form from the "Report on Tuberculosis in Ontario, presented to and adopted by the Provincial Board of Health, by P. A. Bryce, M. A., M. D. secretary." The results obtained in cattle by one of us is added at the foot of the table.

Class of Post Mortem.	By whom.	Number in each.	Lungs.	Bronchial and Mediastinal Glands.	Pleura.	Mesentery and Intestines.		Liver and Uterus.		Spleen and Udder.	
						Mesentery.	Intestines.	Liver.	Uterus.	Spleen.	Udder.
			%	%	%	%	%	%	%	%	%
Ontario Agricultural College herd	Mackenzie	28	64	85	....	7	7	42	....	....	7
Ottawa Experiment Farm herd	Robertson	30	83	73	26	13	4	43	6	....	....
New Jersey (cattle)	Conrow	48	70	56	....	....	....	....	....	2	25
Germany (cattle)	Roeckl	7329	75	29	55	48	1	28	10	19	....
Vermont	Rich	138	82	61	7	22	2	14	1	2	22

In 7,329 cases of more exact returns of post mortems in cattle, the results are given as follows :

		Per cent.
General tuberculosis	459	6.26
Lungs	5,178	75.37
Pleura pulmonalis	3,812	55.49
Peritoneum and mesentery	3,316	48.27
Pleura of chest-wall	3,209	46.71
Bronchial glands and mediastinal glands	2,022	29.43
Liver	1,940	28.24
Spleen	1,273	18.53
Uterus	699	10.17
Inguinal glands	364	5.30
Pharyngeal glands	299	4.35
Trachea	233	3.39
Udder	111	1.62
Intestinal	89	1.30
Ovary	86	1.25
Lymph glands of liver	80	1.16

The lymphatic glands of the thorax and abdomen, the heart, kidneys, stomach, brain, bones, etc., were found diseased in less than one per cent. of the cases.

Wherever the germs locate in the body, they multiply, thus irritating the tissue, forming a round nodular mass, the so-called tubercle, which gives the disease its name. The newly formed tubercle is always small, usually about the size of a millet seed,* is soft and red, or sometimes firm, white, and fibrous. In chronic cases, aggregations of small tubercles become soft and cheesy with a limy material in the centre, disintegrate and run together, forming yellowish, cheesy masses of various sizes imbedded in the tissue of the organs involved. These masses of degenerated or broken down tissue contain caseous (cheesy) matter, calcareous (limy, gritty) matter and pus, sometimes one, and often two or all, of these. This degeneration is caused by the actual death of the tissue. Unless the lesion is recent the mass is sometimes enclosed in several concentric layers of connective tissue like the skin of an onion, an effort on the part of nature to bury the diseased portion and render it harmless.

The surface of the lungs, pleura (lining of the chest cavity over the ribs and diaphragm), and peritoneum (lining of the abdominal cavity) are frequently studded with tubercles, being sometimes so thick as to resemble a cobblestone pavement, or, with clusters of tubercles which look like miniature bunches of grapes. This form of the disease is commonly called pearl disease, pearlsucht, grapes, angleberries, etc. Several of the Station herd were thus affected. The lymphatic glands are usually enlarged, caseated, and calcareous. They are often almost impossible to cut open, because of the deposit of gritty material. The bronchial lymphatic glands which normally are about as large as horse-chestnuts are particularly liable to enlargement and degeneration. The bowels may be ulcerated and have tubercles on them. In short, any organ affected will have tubercles in it varying from the microscopically small miliary tubercle through the pea-sized, soft red or firm white nodule, to larger masses of degenerated tissue, caseated, calcareous, or broken down into pus. Sometimes the tubercles are all so small that it requires a microscope to detect their presence. The cow,

*The comparison in size to a millet seed has given a name, acute miliary tuberculosis, to that form of the disease in which the tubercles are all small and form rapidly.

Creamer, belonging to the Station herd, was thus affected in the udder, there being almost no evidence of the disease elsewhere. She would have passed any abattoir inspection as sound and healthy, yet her udder was full of microscopic tubercles and her milk unquestionably infected.

These lesions are characteristic of the disease and their extent measures its progress. Glanders (which does not affect cattle), actinomycosis (lump jaw), and pleurisy with adhesions are the only diseases which are liable to be confounded with tuberculosis. Usually the restricted localization of the lesions of the two former will serve to distinguish between them. In lump-jaw the lung often contains cheesy masses, rather more yellow than are those due to tuberculosis and containing small grains. In pleurisy with adhesions, in which the lungs have to be torn away from the ribs, the absence of tubercles will aid in determining the character of the disease. Both glanders and actinomycosis are contagious to both man and beast. No mistake would be made in slaughtering the animal whichever disease was at fault.

The one entirely satisfactory evidence of tuberculosis is the detection of the germ and reproduction of the disease. If a germ is found in a nodule of any character which is a rod about one ten thousandth of an inch long, which both stains and bleaches with difficulty, it is probably tuberculosis. If the tissues injected into a susceptible animal produce tuberculosis, the diagnosis is established beyond question.

VI. THE TUBERCULIN TEST.

In August and November, 1890, Dr. Robert Koch,* the first to identify the tubercle bacillus, published the results of experimental work upon tuberculous guinea pigs with a fluid of his own preparation. This fluid (Koch's lymph or tuberculin) was stated at a later date to be the concentrated, sterilized, and filtered liquids in which pure cultures† of the bacillus tuberculosis had been grown.

It has been known for many years that animal decomposition and putrefaction are the results of bacterial growth. The growth of many of these germs gives rise to the formation of peculiar

* Deutsche Med. Wochenschrift, 1890.

† A pure culture consists of the growth of one species of germ by itself, all others being excluded.

alkaloids,* most of which are very poisonous. These bodies as a class are called corpse alkaloids or ptomaines, from πτωμα, a dead body. The many cases of poisoning from eating cheese, ice cream, fish, and putrid meat are usually due to the formation of ptomaines in these materials. It is now believed that each disease producing germ develops, as a function of its life, ptomaines peculiar to itself. Many of these have been isolated and their properties determined. Tuberculin being a glycerine extract of pure cultures of the tubercle bacillus contains the ptomaines peculiar to that germ, the chemical poisons which the life functions of the germ have created. These are the immediate though not the ultimate causes of tubercular lesions.

Tuberculin is prepared by growing the tubercle bacillus in a pure culture until highly concentrated and until a large amount of its ptomaines is developed. Glycerine and carbolic acid are then added and the mixture is filtered through a porcelain plate to remove the germs. The filtered fluid is heated to a high temperature to destroy the vitality of any germs which may have passed the filter and then evaporated at a low temperature in a vacuum until concentrated. The German or Koch tuberculin is put up in five gram bottles and retails in New York for about $10 a bottle ($1,000 a pint). It is diluted one to ten, before use. The tuberculin made by the Bureau of Animal Industry is put up in 12 c. c. bottles and is used without dilution.

The test with cattle is made by injecting the fluid under the skin of the neck or shoulders by means of a sterilized hypodermic syringe. The syringe and the skin and hair at the point of injection are first carefully disinfected in order that no disease-producing germ may enter the system. The German tuberculin is diluted with nine times its volume of a one per cent. solution of carbolic acid, and from one to four cubic centimeters (a cubic centimeter is about one thirtieth of a fluid ounce) of the diluted lymph is used. The cost of the tuberculin used in an average sized injection is about fifty cents.

The normal temperatures are usually taken before and at injection. Tuberculous animals respond by a rise in temperature,

* Organic chemical compounds, existing in many vegetables and animals, containing nitrogen, carbon, hydrogen, and oxygen. They generally include the active principle of the plants. Examples: Theine in tea, morphine in opium, quinine in Peruvian bark, strychnine in nux vomica, tyrotoxicon in poisonous cheese, ice cream, etc.

usually beginning from six to ten hours after injection, but exceptionally not showing until as late as sixteen to eighteen hours. There is usually no marked swelling at the point of injection, but sometimes uneasiness, rigors, chills, and diarrhœa are noticeable. Diarrhœa often affects healthy cattle also, and is caused by the expulsion of the tuberculin by way of the bowels. In some of our work at this station and in the state the "normals" have been taken some days after injection. This has worked well and saved taking the "normals" of animals which later prove to be healthy. It is not safe, however, to take these temperatures the day after injection, as the temperature often rises the second day nearly as high as on the day after injection. All temperatures are taken by inserting a clinical thermometer into the rectum or vagina for from three to five minutes. Normal temperatures should be taken at least twice. The temperatures after injection should be taken at least once in three hours, beginning six hours after and continuing until twenty to twenty-four hours after injection. Variations occur in the normal temperatures of different cows and of the same cows at different times in the day. The average normal temperature of a cow is not far from 101.3°F. It may rise to 102.5° or sink to 100°. *An increase of 2° over normal temperature after injection is ground for suspicion*, unless there is evident reason for it (cow in heat or near calving, change of conditions or surroundings, etc.), while higher figures make the case yet more clear.

There is need of careful observation and trained intelligence in the interpretation of the results of the tuberculin test, since apparent reactions sometimes occur which might mislead the unskillful or careless. *The test is too delicate for ordinary hands.* The Bureau of Animal Industry and the importers of the German goods are exceedingly conservative in placing the lymph only with responsible parties.

The action of tuberculin upon the tubercle bacillus is that of an excitant. It arouses the germs to increased activity, hastens the progress of the disease, tends to scatter the infection throughout the body and throws the animal into a feverish condition, as shown by a rise of bodily temperature of from 2° to 8° F. The tubercular tissue degenerates rapidly through the usual stages, the germs rapidly increase in number, a new extension of the disease in the form of acute miliary tuberculosis usually occurs and death by so-

called "quick consumption" ensues. This action is what brought Koch's lymph into disfavor as a cure, except in cases of lupus (tuberculosis of the skin) and other localized forms of the disease where the diseased tissue is sloughed off. But the very features which prohibit its use as a cure are those which give it its value as a diagnostic agent (means of determining a disease by distinctive marks, symptoms, or characteristics) in cattle. The tuberculous animal because of the very presence and action of the tubercle bacilli in its system becomes more or less charged with tuberculin. The system is inured to this, however, but it is supposed that its balance is upset by the injection of more tuberculin, the germs are excited to greater activity and fever ensues.

Tuberculin was first used as a diagnostic agent in veterinary practice in 1891 by Prof. W. Gutmann,* of the Veterinary Institute, Dorpat, Russia. The tuberculosis commission of the veterinary department of the University of Pennsylvania, Prof. W. L. Zuill,† chairman, were the first to use it in this country, late in the same year. Many of the experiment stations, cattle commissions, and veterinary surgeons of this and other countries have experimented with it since this time and have generally found it successful.

The experiment stations of Canada, Vermont, New York, New Jersey, Pennsylvania, Virginia, Wisconsin, and Minnesota have used it with convincing results. A list of their publications on the subject will be found at the end of this bulletin.

Quotations might be made from the reports of many investigators, American and foreign, but the following may suffice:

"We shall now stop publishing reports on tuberculin in the *Berlin Veterinary Weekly* unless they contain some new facts or views. Since the publication of the reports of the extensive experiments of the Royal Health office, we may regard the question of the value of tuberculin in the diagnosis of tuberculosis of cattle as settled. The proof which has been presented to our readers is more than sufficient. The results are absolute and gratifying, and show that tuberculin is a reliable agent for determining the presence of tuberculosis in cattle." ‡

* Balt. Woch. f. Landw. Geweberfl. u. Handel; also reported in Deutsche Molkerei Zeit., 1891, pp. 81-83.

† Jour. Comp. Med. and Vet. Arch., Nov., 1891.

‡ Berliner Thier. Wochenschrift, June 16, 1892.

Objections to the Tuberculin Test.

Objections having some basis in fact have been raised to the use of tuberculin in veterinary practice. They are, briefly stated:

1. The temperature of healthy animals and those affected with other diseases sometimes rises after the injection of tuberculin.

2. Some tuberculous animals do not react to tuberculin.

3. Tuberculin does not determine the stage of the disease, but condemns animals which might live for years and possibly recover.

4. Tuberculin may produce the disease in healthy animals, and certainly hastens its progress in those affected.

5. Any test to be effective must be followed by thorough eradication. It is impossible to stamp out tuberculosis for financial reasons and because of its prevalence in the human family.

To the first, second, third, last half of the fourth, and the fifth counts in the indictment the test must plead guilty. *The tuberculin test is not infallible.* There have been mistakes made in its use by incompetent persons, and it has occasionally failed in careful hands. Experience, however, has brought a greater measure of success; unfavorable reports are now rare, and many who considered tuberculin unreliable are acknowledging that the fault was their own. But, notwithstanding its occasional and admitted failures, it has proved infinitely more reliable than any other means of diagnosis now in use.

Let us consider these objections:

1. *Apparent reaction of non-tuberculous animals.*—Every animal is liable to fever, and may be thus affected after a tuberculin injection independent of tubercular lesions. A cow for a few days before, at, and for some days after calving may have abnormally high temperature. Yet, on the other hand, one of us has had healthy cows calve in the middle of the test without showing any fever whatever. We have also found that the standing, due to the necessity of frequent taking of temperature, tends to cause acute laminitis (inflammation of the sensitive structure of the feet) accompanied by a rise of temperature, which might be mistaken for a reaction caused by tuberculin. The altered conditions of confinement during summer when the cows are naturally at pasture may also cause a fevered condition. Cows in heat are apt to be feverish. The temperatures of such cows fluctuate more than those of a

cow reacting to tuberculin. Such cases are usually readily detected by the careful observer. Great care should be used in the interpretation of the results of the injection of two-year-olds with their first calf. The explanation for this may be that the changes caused by their first gestation are such as to render their systems readily fevered by any excitement. Care should be taken not to inject directly into a lymph or blood vessel, lest neighboring glands become inflamed. Mistakes have been made by careless post-mortems, and many who have reported reactions in healthy animals are acknowledging that they failed to make careful examinations of all organs, bones, joints, etc., or did not use the microscope. It has been claimed that animals suffering from actinomycosis may react to tuberculin. From a practical standpoint, since lump-jaw is contagious, and communicated to man, this makes little difference, yet it is not impossible that there may have been tubercular lesions overlooked in these cases. One of us had two cases of this kind. One cow with lump-jaw gave no reaction whatever to tuberculin; another with both tuberculosis and lump-jaw gave the highest reaction (108.6°) yet obtained.

2. *Non-reaction in tuberculous animals.*—These cases are sometimes found. We have found two cases of non-reacting tuberculous cattle in over a thousand injected. This may be explained in two ways. It is a well known fact that some individuals are not affected in the ordinary manner by certain drugs. For instance, morphine does not narcotize some people. It is possible that these cases may be similarly explained. Or, the animal may be so thoroughly diseased that its system is already saturated with the natural tuberculin, so that the slight addition has no effect. Usually such cases may be detected without recourse to tuberculin or in spite of its lack of reaction. We have noticed in our experience that very old cows do not respond so readily to the usual amount injected.

3. *Indiscriminate Condemnation of all Stages of the Disease.*—Neither the length of time elapsing between the injection and reaction, the duration, or the height of the fever indicate the extent of the lesions of the disease. The slightest and most recent cases, as well as those of long standing are betrayed. Herein lies the peculiar value of the test. It is questioned by some veterinarians whether for practical purposes animals very slightly affected should be considered tuberculous. Probably many might live for years without

marked advance of the disease. But who shall say in such cases when the danger line is passed? Is it worth while to prolong for a year or two the life of a few confessedly tuberculous animals to run the risk of infecting a herd as well as human beings? While many animals but slightly affected might live for years in apparent health and usefulness, a tuberculous animal, whatever its condition, is a constant menace to the other members of the herd, and to those who care for it or consume its products. If to-day the germs are inactive, to-morrow they may pass into the blood, to the udder and infect the milk. It is stated on good authority that the tubercle germs may exist in the milk even when the udder is not affected. The preservation of a single tuberculous animal invites renewed disease. There are as yet few, if any, authenticated published accounts of cured bovine tuberculosis, although possibly favorable climatic conditions may arrest the progress of the disease. Viewed solely from a monetary standpoint the truer economy lies in the exclusion of every possible source of future infection.

4. Production of the Disease in Healthy Animals and its Aggravation in Tuberculous Animals.—Tuberculosis is primarily due to the tubercle bacillus. If the lymph is properly made and sterilized every germ and spore in it is killed, and hence it cannot cause the disease.

During the preparation of this bulletin one of us wrote to a large number of veterinarians all over the United States, asking among other questions whether it was possible for tuberculin to cause tuberculosis, or any other disease in a hitherto healthy cow. But two replies were received in the affirmative while a large number claimed the impossibility of such infection with properly made and carefully handled tuberculin. These two replies were received from gentlemen, eminent in the profession, who have been working together. They base their belief in the possible infection of healthy animals upon the fact that they have found the bacillus in tuberculin, and they claim that it is unwise to use the material until more is known of its power to produce immunity, or possibly a predisposition to tuberculosis.

The first claim simply emphasizes the necessity of care in the preparation and use of the material. The lymph was first used for diagnostic purposes in veterinary practice nearly three years ago, and the evidence is already strong against the probability of any

predisposition being caused. For example, the Pennsylvania Experiment Station herd was first injected in June, 1892, and has been twice injected since, the last time within a few weeks. The disease was discovered on the first injection, but not on either of the succeeding trials.* It is nearly two years since we first used tuberculin and cattle then injected and recently retested have shown no evidence of disease. While this evidence is only negative, it is confirmed by similar tests elsewhere. There is still much to be learned in the use of tuberculin. It is already claimed that other materials will cause the same febrile reaction. Taurin and Kreatin (Merck's) have given good results in the hands of Dr. W. L. Zuill of Philadelphia, and E. Centauni claims that "it has been proved that identically the same action as that of tuberculin can be produced by the injection of the extracts or other products of various bacteria, even such as are known to have no pathogenic (disease-producing) properties†." If further experiment confirms these results, and these or other materials are found to be as reliable as tuberculin, they should and undoubtedly will supplant it, since they obviate the danger which lies in careless making and use of tuberculin.

The aggravation of the disease in tuberculous animals is not a valid argument in cases where such as react are promptly killed. No one who expects to keep his mild cases should permit its use, for it only makes a bad matter worse.

5. *A thorough eradication an impossibility.*—The complete eradication of tuberculosis, its "stamping out," is not a work of years, but of decades, perhaps centuries. But increased knowledge and better means of detection enable us to make a stronger fight against it. We now know how and why it attacks, may detect its presence and do much to prevent its ravages. We may confidently expect yet more light as time goes on. If we cannot eradicate tuberculosis in the near future, let us do what we can in that direction.

When the great conflagrations of Chicago and Boston were at their height, the firemen did not reel up their hose and go home because the flames were apparently beyond their control. They worked around the edges of the fire, and blew up buildings yet unburned in its path. They did what they could and finally

* Penn. State Coll. Agl. Expt. Stat. Bul. No. 21, Oct., 1892.
† Berliner Klinische Wochenschrift, Nos. 7 and 8, 1894.

controlled the flames. Similarly, in the battle with human and animal tuberculosis, weeding out disease here and there, disinfecting, and the destruction of property in the shape of animals in the interests of the public health are good policy until better knowledge and means enable us to do more complete work. The question of the relation of the state to the individual and to disease will be considered elsewhere.

VII. INTER-RELATION OF HUMAN AND BOVINE TUBERCULOSIS.

Bovine tuberculosis is infectious. Hundreds of experiments have proved that this disease may pass from a tuberculous to a healthy animal. Stahl cites 650 experiments in the transmission of tuberculosis to lower animals by direct experiment with convincing results in every case. Koch* and others have inoculated healthy animals of many sorts with tuberculous bovine tissue and reproduced the disease. Bollinger,† Ernst, and Peters.‡ and others have infected calves and swine by feeding them tuberculous milk. The unboiled milk of tuberculous cows, without indications of diseased udders, infected a herd of English pigs.§ The mother of calf No. 3 of the station herd is healthy, and the tubercular mesenteric lymphatic glands of the calf were probably due to drinking the herd skimmilk. A litter of five pigs out of apparently strong and healthy parents were killed last winter by one of us. All were tuberculous, and in one case it was generalized and far advanced. They had been fed on the mixed skimmilk of a creamery, and on two different occasions cows supplying this creamery had been tested and killed because of tuberculosis. Many of the pigs fed on the skimmilk of the Mountain View herd at East Burke, Vt. (78 out of 91 cattle found tuberculous by the tuberculin test and confirmed by post-mortem), were found when butchered to be as tuberculous as the cattle. At another farm where the station veterinarian was called to use the tuberculin test, over sixty cows, over a hundred hogs, all the chickens, the dogs, and even the family cat were exterminated because of this disease. The location of the disease at both ends of the line of cows in the station

* Loc. cit.
† Munchener Med. Wochenschr, 1889.
‡ Publications Mass. Soc. Promot. Agr.
§ *British Medical Journal*, I, 1839, 30.

barn with but one diseased cow in the middle is suggestive in this connection.

Human tuberculosis is infectious.—This belief was held before the Christian era. About a hundred years ago the doctrine of hereditary transmission was advanced, but our present knowledge of its germ origin has forced the profession back to the old belief in infection with hereditary predisposition as an accessory cause. There are now scores of observations on record in medical journals which are positive evidence. Without going into details a few may be cited:

Italy's mild climate has long invited consumptives from every direction, who have so infected the country that even among its natives the disease is almost epidemic and its consumption death rate higher than that of any other European country.

"Prison consumption is notorious. Kennan* reports it to be a great scourge in Siberian prisons. There is usually a greater proportion of this disease in 'institutions' than where human life is less segregated. Cornet† found, during twenty-five years in the thirty-eight cloisters, 2,099 nuns acting as nurses had died. Of these 1,300 or sixty-three per cent. had died of tuberculosis, or four and a half times the usual percentage. This seemed due almost entirely to their greater exposure to infection."

A recent example close at hand may be found in the report for 1893 of Dr. J. B. Ransom,‡ physician of the state's prison at Dannemora, Clinton county, New York. He states that the percentage of total deaths from tubercular disease in that prison is over 80 per cent. In a private letter to one of us he states that he does not connect this with the milk supply, which is but small per man.

"In a lying-in hospital in Berlin was a nurse whose business it was to resuscitate children who were born asphyxiated by breathing into their lungs. Of ten infants so treated every one died of tuberculosis. The nurse died, and upon examination showed that her lungs were tuberculous. The children were shown to have been born of healthy parents."§

* *Century Magazine*, June, 1889, p. 172.

† Zeit. fur Hygiene, VI, 1, 64.

‡ Annual Report of Supt. Prisons of the State of New York for 1893, p. 181; also Report Proc. National Prison Asso., 1894.

Betliner Klinische Wochenschrift, No. 37, 1878.

Three Grecian surgeons injected the sputa of a consumptive into the thigh of a fisherman whose death from gangrene was inevitable. Previous to injection they examined and found the lungs sound and healthy. He had no known hereditary predisposition to tuberculosis. In three weeks the lungs showed signs of disease, and at death (from gangrene) in thirty-eight days after injection, seventeen tubercles were found at the summit of the right lung, two on the upper part of the left lung, and two on the liver.*

Eight cases of consumption occurring within a few months in an English convent were traced to a single case. There had been no isolation, but all had slept in the same general dormitory. On isolation of the sick and proper disinfection the disease stopped.†

Biggs‡ cites a case reported by Schwenninger. Tappeiner conducted experiments on dogs, causing them to breath air artificially infected with tubercle bacilli. His servant not believing in the danger and disregarding warnings, persisted in entering the inhalation chamber. He was free from hereditary predisposition, robust and healthy. He died of acute tuberculosis in fourteen weeks, and an autopsy showed the same lesions as those found in the dogs.

Dr. Dewevre of Paris noted that three brothers, all his patients, successively sickened and died of tuberculosis. They had shared the same bed and were all bed-bug bitten. He found this bed over-run with bed-bugs, and learned that it had been thus infested for five years. Thirty bugs were caught and put upon three healthy guinea pigs, all of which soon died, and post-mortems showed well-marked tuberculosis. From the diluted and filtered pulp of fifty crushed bed-bugs bacterial cultures were obtained which caused typical tuberculosis when inoculated.§

Flies have sometimes been known to disseminate anthrax and other germ diseases. It is also claimed that they eat and disseminate tuberculous sputa, that the germ may be found in their bodies,‖ and that fly specks carefully removed from the material

* Gazette Medical de Paris, No. 17, 1872.

† *London Medical Record*, July 15, 1884.

‡ *Buffalo Med. and Surg. Journ.*, June, 1890.

§ Cressy: Report on Sanito-Veterinary Investigations, 27th An. Report Conn. Bd. Agr., p. 24.

‖ Spillman and Haushalter: La Semaine Medical, Oct. 15, 1887; also Gazette hebdom, de Med. et de Chir.

to which they clung and injected have caused tuberculosis in guinea pigs.*

A cook in removing a glass sputum cup broke it and a splinter of the glass punctured her finger. Two weeks later a swelling appeared, which grew until finally amputation was necessary. Examination showed numerous miliary tubercles containing the characteristic tubercle bacilli.†

A young surgeon, Laennec ‡ by name, had a somewhat similar experience. He wounded the index finger with a saw blade while cutting a tuberculous vertebra. A small rounded tumor with the physical characteristics of tubercle appeared at the spot and was removed.

Dr. Eve § relates the cases of two children circumcized when eight days old in the Jewish manner by a tuberculous rabbi. In one case at six weeks tubercular swellings developed and in five months caseous abcesses formed, the material of which injected into guinea pigs induced general tuberculosis. The other child showed similar symptoms.

Dr. H. C. Earnst ‖ stated that he "had here something like two thousand references to articles written in all languages, and in different parts of the world, bearing upon and proving the infectious nature of tuberculosis, including only the literature extending over about the past seven years."

Human and Bovine Tuberculosis are identical. The germs, the lesions, and in many respects the symptoms are the same. Lower animals inoculated with the tuberculous products of man contract the disease, the results are precisely the same as when the products of other animals are used, and the microscope shows the same germ present. Dogs, cats, and poultry have in many cases on record ¶ become infected from eating human sputa, while guinea pigs inoculated with fresh or dried sputa, or forced to inhale the

* Hoffman: Deutsche Med. Zeit. July 16, 1889.

† Tsherming: Progress Med. 1885.

‡ Abhandlungen von den Krankheiten der Lungen, Leipzig, 1832. Said to be the first recorded successful inoculation with tuberculous matter.

§ *Lancet*, Jan. 28, 1888.

‖ Hearing on the "Dangers to Human Life from Bacilli of Tuberculosis in Milk" before the Committee on Public Health of the Massachusetts Legislature of 1891.

¶ Peters; Vet. Journal XVIII, 1887, p. 394; Nocard; Recueil de Med. Vet. annexe, 1888, 537; *ibid.* 1889, 66; *ibid.* 1885 annexe, 93: LaMalleree; La Semaine Med, 1888, and others. See also 6th and 7th Reports Bureau of Animal Industry 1888-1890, p. 47, 48.

dust of dried sputa, have succumbed to tuberculosis. There is no reason to believe that larger animals may not as readily be infected in the same manner.

Human tuberculosis infects the lower animals, and, what is vastly more important, and the central fact which prompts the publication of articles of this nature, BOVINE TUBERCULOSIS INFECTS MAN.

Bovine Tuberculosis Transmissible to Man.

It is obvious that direct experiment on man with tuberculous material from the lower animals is out of the question. There are on record, however, a number of cases of accidental infection of human beings by the products of tuberculous cattle. There is reason to believe that countless thousands of deaths have occurred due to this source of infection, which have not been thus ascribed and of which no record has been made. Children are more likely to be infected than adults, owing to their tissues being less resistant and because their chief food is milk. It should not be inferred, however, that disease and death of necessity follow the consumption of tuberculous meat or milk. The following are some of the authenticated cases of accidental infection which have come to our notice. It is not to be inferred that they are of necessity all or the strongest on record.

Dr. Anderson of Seeland reports a case of a babe fed on the milk of a cow having tuberculosis of the udder. The child died at six months with tuberculosis. The mother also developed symptoms of the disease after the child's birth. It was considered that both contracted the disease from the cow's milk.*

Ollivier† at a meeting of the Academie de Medicine of Paris stated that a patient of his, a young woman twenty years old, of vigorous health and without constitutional trouble, had acute tubercular meningitis (inflammation of the membranes of the brain of tubercular origin). She had been educated at a boarding school where thirteen pupils had been ill of, and six had died of, tuberculosis within a few months. The milk supplied to the school was from cows kept on the place. Upon examination these

* Hatch Exp. Station of Mass. Ag'l College, Bul. No. 3, p. 15.

† Bacteriological World, Aug. '91, translated from Allgem. Med. Cent. Zeit.: also La Semaine Médical, Paris, Feb. 25, 1892.

animals were found to have tubercular ulcers on their udders, and after being slaughtered were found to be generally tuberculous.

A Scotch family, all of sturdy health, had a herd of cattle which developed tuberculosis. Two daughters, being young, were brought up on the milk. Their two older brothers were more fond of whiskey than of milk. They are living healthy and hearty, while their two sisters are lying in their graves, victims of tuberculosis.*

In the practice of Dr. Stang of Amorback a well-developed five-year-old boy from sound parents, whose ancestors on both sides were free from hereditary taint, succumbed after a few weeks' illness with acute miliary tuberculosis of the lungs and enormously enlarged mesenteric glands. A short time before the parents had their family cow killed and found her the victim of advanced pulmonary tuberculosis.†

Dr. Demme records the cases of four infants in the Child's Hospital at Berne, the issue of sound parents, without any tuberculous ancestry, that died of intestinal and mesenteric tuberculosis, as the result of feeding on the unsterilized milk of tuberculous cows. They were the only cases in which he was able to exclude the possibility of other causes for the disease, but in these he was satisfied that the milk was alone to blame.‡

The infant son of a college mate of one of us, a comparatively strong and healthy child of twenty-one months, visited his uncle for a week. While there he drank the unsterilized milk of a cow which was soon after condemned and killed in a state of generalized tuberculosis. A few weeks after his return the child began to fail and died three months after the fatal visit, a mere skeleton, with tabes mesenterica, or consumption of the bowels. Both of the child's grandfathers had died of tuberculosis when over sixty years of age as well as two grand aunts and one grand uncle. The child never saw but one of these, and him but two or three times and for short intervals only. A second child brought up on § sterilized milk is in robust health. Both parents are in excellent health.

A child four years old, great grandson of Henry Ward Beecher,

* Discussion on Tuberculosis, Meeting Nat. Vet. Ass'n, London, May, '83. Extracted from Lecture to Md. Sanitary Council by Dr. Robt. Ward, 1886, p. 10.

† Law: Cornell University Exp. Stat., Bul. No. 65, p. 137.

‡ Law: Cornell University Exp. Stat., Bul. No. 65, p. 137.

§ Private letter to J. L. H.; also reported by Law, *ibid.*, p. 137.

died last March at Yonkers, N. Y., of tubercular meningitis. The diagnosis was confirmed by specialists. There were no hereditary tendencies to the disease known. The certainty that he had the disease, and the inability to account for it from human agencies led the physicians to suspect the milk of two Alderney cows on which the child had been mainly fed. Both the tuberculin test and the post-mortems showed that both animals were tuberculous. Through the kindness of Dr. J. S. Lamkin of Yonkers, who made both tests and post-mortems, sections of the lungs and a gland were sent to us. They were found to be highly tuberculous.*

May 30, 1879, a cow died of generalized tuberculosis in Providence, R. I., the lungs, most of the abdominal viscera, muscular tissue, and udder being tuberculous. The milk had been used in the family. In August the baby was taken sick and died in seven weeks of tubercular meningitis. Post-mortem showed tubercular deposits in the membranes covering the brain, and some in the lungs. Two years later a two-year-old child in the same family died of tubercular bronchitis and seven years later a nine-year-old boy, "delicate" for years, died of "quick" consumption. So far as known the family on both sides were rugged and healthy.†

Dr. H. M. Pond‡ reports four cases of tuberculosis in one family, of which three were fatal. He considered the milk of their cows to be the source of the disease, since those animals were apparently tuberculous.

In the spring of 1890 Dr. Gage, city physician of Lowell, Mass., had as a patient an infant which died of tubercular meningitis. Its parents were healthy and surroundings good. It had never been fed anything but the milk of a single cow. The cow's milk was microscopically examined and found to contain the bacilli of tuberculosis. Guinea pigs inoculated with her milk developed the disease. A second child fed upon the same milk was developing similar symptoms to those discovered in the child that died. Dr. Gage could find no way to prevent the sale of the milk unless he bought and paid for the cow out of

* N. Y. *Sun*, March 29, '94. Also private letters to J. L. H.

† Ernst: Report to Mass. Soc. Promot. Agr., p. 4; also reprint in Hatch Exp. Stat. of Mass. Ag'l College, Bul. No. 8, p. 16.

‡ Pacific Med. & Surg. Jour., 1888.

his own pocket. So far as he knew she was still being used for a milk supply a year later.*

The following cases of infection from eating meat or direct inoculation may be cited.† A woman whose ancestors were without tuberculous taint ate eleven chickens bought from a neighbor. These chickens had been in the habit of greedily eating the spittle of their consumptive owner. They were but slightly roasted before eaten. The woman soon developed a well-marked case of tuberculosis of the bowels.

Dr. Treon‡ describes the poor, emaciated, diseased animals furnished to the tribes of Northwestern Indians, how they eat the liver, tallow, and entrails raw and fresh, and how the carcass is dried, pounded, and packed in skins to be eaten later, uncooked, even though the animal died of disease. The Indian mortality from consumption is 50 per cent. of all deaths at several points, while at Crow Creek, Dakota, 50 out of the total Indian population of 1,200 die yearly of consumption and scrofula.§

Dr. Washington Matthews‖ spent twenty-one years among the Indians. He states that their food is the primary cause of disease among them, and that when the supply of fresh beef is liberal the consumption death rate is highest.

A gentleman after eating something infected with tuberculosis has a nodule of tuberculous tissue form upon his tongue.¶

Tscherming attended a veterinarian who cut his finger during a post-mortem on a tuberculous cow. An ulcerated swelling formed which on removal proved to be tuberculous and contained the characteristic bacilli.**

Law†† reports a case in his personal experience precisely parallel with Tscherming's.

Pfieffer attended a veterinarian of good constitution, without hereditary predisposition, who cut his right thumb deeply during a post-mortem on a tuberculous cow. The wound healed but remained swollen. A year later pulmonary tuberculosis had

* Ernst: Hearing before Committee on Public Health, Mass. Legislature of 1891; Publications Mass. Soc. Promot. Agr., p. 19.

† La Malleree;—La Semaine Med., 1888.

‡ Amer. Practitioner; quoted by Law, *ibid.*, p. 131.

§ Holder;—*Medical Record*, Aug. 13, 1892, quoted by Law, *ibid.*, p. 131. Scrofula is usually of tuberculous origin.

‖ Census of 1880.

¶ Ernst: Hearing, etc., p. 6.

** Law, *ibid.*, p. 318.

†† Law, *ibid.*, p. 318.

developed and in two and a half years after the wound the man died. Post-mortem examinations showed tuberculosis of the joint of the wounded thumb and of the lungs.*

Dr. Ernst† sent a letter of inquiry to about 2,000 medical men and veterinarians of the highest standing. "Out of 1,200 or 1,300 answers received but two expressed an absolute disbelief in milk as a vehicle for the virus of tuberculosis; there were a large number who expressed their belief in it; a large number who stated, what is perfectly true, the difficulty of proving such a thing but expressed their belief in it; and a comparatively small number who furnished me with cases which they believed were distinctly traceable to the milk coming from tuberculous cows.

"I have records of cases of probable infection of children from the milk of mothers with tuberculosis of the lungs and mamma. I have cases of the infection of children from milk coming from tuberculous cows. I have a large number of cases from veterinarians showing the infection of calves from tuberculous cows; and it seems to me that the amount of evidence obtained from the clinical side is very great."

Dr. E. O. Shakespeare, ex U. S. cholera commissioner, says "With all its terrors it (cholera) is not nearly so deadly as is tuberculosis,"‡ and "It has been found that in infants and young children in some large cities the mortality from some form of tuberculosis is far greater than is generally believed, amounting in some localities to one fifth of the deaths in the young. The significant fact in this connection is that it is most frequently some part of the digestive passages that became first affected."§

In this connection by way of negative evidence it is interesting to compare the geographic distribution of cattle and tuberculosis. Dr. E. F. Brush‖ of Mount Vernon, N. Y., has given years of study and investigation to this matter, and in his papers scattered through the New York *Medical Journal* makes the statement that tuberculosis does not exist among people which do not employ milch

* Law, *ibid*, p. 318.

† Ernst, *ibid*, p. 9.

‡ Report 4th Annual Meeting Farmers' Inst. New Castle Co., Delaware, p. 16. "Relationship existing between Human and Bovine Tuberculosis," June 15, '89, pp. 645-650; "On the Coincident Geographical Distribution of Tuberculosis and Dairy Cattle," March 8, '90, pp. 253-256; "Sterilized Milk," June 20, '91, pp. 719-721; "One of the Apparent Reasons why Man is afflicted with Tuberculosis,' Dec. 10, '92, pp. 657-659.

§ *Medical News*, March 26, 1892.

‖ N. Y. Med. Jour.; "Bovine Tuberculosis," March 24, '88, pp. 314-317.

cattle. The inference to be drawn is not that human tuberculosis comes mainly from cattle, for man gets his infection mostly from his fellow man, but that possibly the primary source of infection and more or less of its maintenance and extension are due to cattle. Whatever be the inference there is little question that human consumption is relatively less prevalent in countries where there are few or no cattle (Hebrides, Iceland, Newfoundland, Algiers, interior Southern Africa, parts of Ecuador and Peru and islands of the Pacific) and where reindeer (Northern Norway, Sweden, Finland, Lapland, Greenland) goats, or mares (Kirghis Steppes) furnish the milk. In some of the western South American countries cattle are used only for beef, since "so many cases of consumption have been traced to its (milk) use, that the entire population (of Eastern Peru) with scarcely a single exception leave it entirely alone."*

Is the milk of a cow dangerous if the udder is not affected? Authorities differ. Koch,† Nocard,‡ and others failed to infect animals with milk from tuberculous cows whose udders were unaffected. On the other hand, Bang,§ Bollinger,‖ Hirschberger,¶ Ernst and Peters,** Smith and Kilbourne,†† and Law ‡‡ have succeeded in infecting animals with the milk of tuberculous cows with apparently sound udders. In Bang's work most painstaking microscopical examinations of the udders of six cows giving infectious milk failed to show lesions. The conclusions drawn by Ernst and Peters from their careful work at Mattapan, Mass., are:

1st. And emphatically, that the milk from cows affected with tuberculosis in any part of the body may contain the virus of the disease.

2d. That the virus is present whether there is disease of the udder or not.

* Loc cit.

† De Kalb in "Nation." Quoted by Bact. World, 1-3 p. 217.

‡ Recueil de Med. Vet. annexe 1885, p. 49.

§ Deutsche Zeit f. Thiermed XI-45, 1885, also Congress pour l'etude de la Tuberculose, 1888.

‖ Deutsche Zeit f. Thiermed XIV, 264.

¶ Deutsche Arch f. Klin. Med. XLIV, 500; also Internat. Klin. Rundschau, Sept. 22, '90.

** Trans. Assoc. Amer. Phys., IV, 1889. Report to Mass. Soc. Promot. Agr. Hatch Agl. Exp. Sta. Bul., 8.

†† Bureau of Animal Industry, Bul. 3; also 8th and 9th Reports same, p. 64.

‡‡ Cornell Univ. Exp. Stat. Bul. 65, p. 136.

3d. That there is no ground for the assertion that there must be a lesion of the udder before the milk can contain the infection of tuberculosis.

4th. That, on the contrary, the bacilli of tuberculosis are present and active in a very large proportion of cases in the milk of cows affected with tuberculosis but with no discoverable lesion of the udder.

The fact that bovine tuberculosis may be transmitted to lower animals is absolutely proved by hundreds of positive experiments, and that it may likewise infect human beings through association and by their consumption of meat and milk, while not proved by direct, positive, intentional experiment, is placed practically beyond doubt by many observations of accidental infection.

Can the germ be killed and tuberculous meat and milk be made safe to eat by cooking?

The beef muscle is seldom affected but the small lymphatic glands between the muscles, commonly cut and eaten in steaks and roasts, are often diseased. The flesh itself of the pig is affected, and tuberculous pork is much more dangerous than tuberculous beef. The interior of a rare roast or steak is not heated to a point to insure safety, but all germs in a well-done or well-boiled piece are usually killed.

If milk be boiled for half an hour or heated by steam to 212°F practically all germ life will be destroyed. If heated to 150° to 167°F for half an hour to an hour and then cooled (rapidly if possible), the growth of such disease producing germs as are not killed is retarded for a period of twenty-four hours or more. The albumen is not coagulated at these temperatures, the milk is more palatable and digestible than if sterilized and is practically safe for prompt use. Pasteurized milk will not keep quite as long as sterilized milk. *Either sterilization or pasteurization is highly desirable with milk intended for children*, and is not a serious task. If bottles, one-half to three-fourths full of milk, are steamed for half an hour in a common steamer on the kitchen stove all disease germs will be killed. The mouths of the bottles should be then plugged with clean absorbent cotton or cotton wool as soon as removed from the steamer in order to keep all germs out. Half-pint beer bottles with patent stoppers, costing sixty cents a dozen, are used in the family of one of us, and the milk is pasteurized with

the stoppers closed as suggested by Cary.* A good milk sterilizer complete may be bought for from two to three dollars.

Three different models of milk sterilizers are shown herewith. The "Arnold" sterilizer is made by Wilmot Castle & Co., 14 Elm St., Rochester, N. Y., and sells, with bottles, for $2.50. A recent modification of this apparatus enables pasteurization or sterilization in the same apparatus. A copper sterilizer of this pattern with six patent stopper bottles made to order in Burlington cost $2.30.

Dr. Law† points out a hitherto unappreciated source of danger in the use of the products of tuberculous animals even after complete sterilization. He draws a distinction between tubercular poisoning and tubercular infection. The product of the life of the tubercle bacillus is tuberculin. Its ptomaines, being lifeless, are not killed, but are intensified by heat. This material being generally diffused throughout a tuberculous subject exists in its products. Hence, those consuming its products, even though they are sterilized, are taking small doses of tuberculin, and if they are already tuberculous the effect may be to stimulate and extend the disease. The transmission of the germ is admitted to be more common from man to man than from animal to man. Though thus implanted, its subsequent destructive progress may be largely due to the constant accessions of the soluble poisonous products of tuberculous meat and milk without which the implanted germ might have lain dormant. The reasoning from known facts is logical and Dr. Law's point seems well taken. If this be true it goes far towards explaining why tuberculosis is comparatively rare in countries where cattle are few. It tends to place the blame for the extension, if not for the inception, of disease upon the bovine species.

Were it not for the use of tuberculin as a diagnostic agent the consumer might be considered to be between the devil and the deep sea, with tubercular infection on the one hand and tubercular poisoning on the other.

The reader should neither infer that there is of necessity more bovine tuberculosis now than in years past, nor that the danger to human life is greater. If some of the customs of modern life have increased our dangers, others have decreased them. We are hear-

* Alabama Agl. Exp. Station, Bul. 53.

† *Ibid.*, p. 138.

ing more about tuberculosis now than ever before, simply because we know more about it. But so long as the human death rate from this disease remains at its present height, it will be profitable to continue to discuss measures for its prevention. Nor should our dairymen and breeders become needlessly alarmed. Probably not one animal in thirty throughout the state has the disease, and there are thousands of herds entirely free. What we need is simply that all realize the nature and conditions of the disease and of its spread. This done they can breed and care for their stock understandingly, weed out suspects at once, disinfect where needed; in short, use all possible precautions to avoid the disease. To this end a full, free, temperate, and intelligent discussion is invited.

Is bovine tuberculosis curable? The usual opinion is that treatment is of little avail, that it is troublesome and costly, and that the results are unsatisfactory. Some believe that climatic change benefits cattle as it does mankind. It is true that the steers of the high altitudes of the West are practically free from this disease. It is doubtful, however, whether it would pay to try climatic change upon many animals or whether Western stock owners would admit confessedly tuberculous animals among their hitherto unaffected stock. The proverb, "An ounce of prevention is worth a pound of cure," is applicable to this disease. We may look forward to curative measures in the future, but at present the means are not known.

8. PREVENTION.

Since the results of curative treatments are unsatisfactory, and prevention is the watchword, *how may the disease be most surely prevented? Both human and bovine tuberculosis are distinctly preventable.* The measures that may be taken to prevent its spread are, briefly:

1. *Rigid official inspection of cattle, meat, and milk.*

2. *The immediate destruction or sterilization of human sputa and all tuberculous discharges.*

3. *The careful disinfection of rooms, hospital wards, barns, etc., occupied by tuberculous men or animals.*

Though thus briefly summed, the execution of these measures involves a mass of details. Sumptuary laws are always difficult to enforce and questions of possibility and expediency should enter into

consideration before enactment. "The fountain cannot rise higher than its source," and until the people thoroughly appreciate the dangers and understand the cause and means of prevention of tuberculosis, its control will be difficult.

The following precautions will be found useful by the stock owner in weeding out or keeping out tuberculosis :

1. The cow stable should be light, well ventilated and dry, the water pure and fresh, the feed nutritious and plentiful, the breeding judicious, with due regard to constitution.

2. So far as possible cattle should be kept from licking each other, from eating from the same manger, and from interchange of mangers.

3. Suspected animals should be isolated, should neither eat nor drink from a common manger or drinking trough, nor should their orts be fed to other cattle. Old cows, those having husky or rattling cough, wheezy breathing, nasal discharge, enlarged glands under the skin, diseased udder, garget (sometimes), diseased joints, etc., unthriftiness in general, cattle with weak constitutions and poor physical conformation (narrow chest, light barrel, long legs, pot bellies, etc.), are most open to suspicion. Such animals should be examined by a skillful veterinarian, and in case of doubt should be tested with tuberculin. If a single animal shows tuberculosis, the whole herd should thus be tested.

4. No new animal should be admitted from herds in which contagious disease has existed, from city or swill stables, or that shows signs of disease or unthriftiness, unless tuberculin tested. It is almost equally desirable that unsuspected animals also be thus tested.

5. No consumptive person should work with live stock or prepare their food.

6. All tuberculous animals should be killed and their carcasses either burned or deeply buried in places where animals have no access.

7. Disinfection should be thorough and extend to all products of and articles used by the cattle. The means used at this station were burning sulphur in the closed stable, washing or spraying every square inch of surface with a solution of one part corrosive sublimate in one thousand parts of water, and the replacing of all the wood-work of the mangers. *Corrosive sublimate is a violent poison and should be used with care.*

The following directions for disinfection will be found useful in cases of animal disease:

1. Remove and burn all loose litter, hay, rubbish, etc.

2. Wash all mangers, hay racks, and all wood work with a dilute solution of corrosive sublimate as stated above.

3. Whitewash all the inside of the building, especially mangers, hay racks, etc., and all wooden utensils used in the barn with a whitewash containing one pound of chloride of lime to four or five gallons of water.

4. Remove and burn all rotten wood work, particularly about the mangers, drinking troughs, etc. It is advisable to replace these even if sound.

II.

Upon the subject of the prevention of tuberculosis in the human family Prof. Frederick G. Novy, Sc. D., M. D., University of Michigan, says: With the fact before us that tuberculosis is a communicable disease, it follows that every effort that can be made by the individual and by the state should be exerted in the endeavor to decrease, if not suppress, this dread scourge of mankind. Once smallpox merited this distinction, and leprosy was at one time widely prevalent, yet, by the adoption and enforcement of special measures, these diseases are now exceedingly rare in civilized countries. May we not hope that in the future Hygiene may point with equal pride to the restriction of other infectious diseases just as today Medicine is proud, and justly proud, of the triumphs of antiseptic and aseptic surgery?

Any rational method for the prevention of infectious diseases must take into consideration the nature and properties of the causative organism—the mode by which it gains entrance into the body, the way by which it leaves the diseased individual, and its distribution in nature outside of the body.

The several avenues by which the tubercle bacillus gains entrance to the body have already been touched upon. The most destructive form of the disease is pulmonary tuberculosis, resulting from infection along the respiratory tract. It is the most common and dangerous form, and against it, therefore, all efforts at prevention must primarily be directed.

There are only two conceivable ways by which the tubercle bacillus can leave the diseased lungs and these are in the expired air and in the sputum. So far as the first of these is

concerned, it can be shown on physical as well as experimental grounds that it is impossible for the tubercle bacillus or any other organism to leave a moist surface and be carried off by a current of air. Direct examination of the expired air of consumptives confirms the absence of the tubercle bacillus. On the other hand the sputum is known to contain tubercle bacilli, frequently in enormous numbers.

The sputum is the principal means by which the tubercle bacillus leaves the body. In secondary infection the urine or the fæces may of course contain it. Bearing in mind the fact that an organism cannot leave a moist surface and pass into the air, it follows that sputum as long as it is moist is without danger. It may, it is true, if introduced into a cut or wound give rise to inoculation tuberculosis, or if eaten by an animal induce the intestinal form ; but as long as it is moist there is no danger of infection in man along the respiratory tract.

The sputum, however, becomes dangerous as soon as it has dried down, become pulverized, and the fine particles scattered through the air by currents or in the process of sweeping.

The infectious character of sputum, whether moist or dried and powdered, is not a supposition but is based upon plain facts. That there are tubercle bacilli in the sputum which are alive and virulent is demonstrated almost every day in bacteriological laboratories. Some of the tubercle bacilli in the sputum may be dead and undoubtedly are dead. That is something that would be naturally expected. Death goes always hand-in-hand with life and what is true of man is also true of lower forms. Communities of men are never without their dead, without their cemeteries, and colonies of tubercle bacilli cannot be expected to follow other laws of life. No matter how many of the tubercle bacilli are dead, as long as there are some which are alive they are virulent and therefore capable of inducing infection.

Not only are there tubercle bacilli contained in the sputum which are alive and infectious, but—what is of almost equal importance in the consideration of prevention—they are highly resistant to destruction. The experiments of Schill and Fischer have shown that dried, powdered sputum preserves its virulence for at least six months, and Cornet's observations demonstrate that thin layers of dust from the walls of the rooms of consumptives contain virulent tubercle bacilli for at least six weeks. Furthermore, the experiments of Albu and Weyl deserve to be

mentioned in this connection, since they show that the sputum of consumptives treated with creosote for a long time and in large amounts still contains living, virulent tubercle bacilli.

The danger of infection from tuberculosis exists, then, in the sputum after it has dried down and become pulverized. As long as a consumptive discharges the sputum into a suitable receptacle which can be washed out or disinfected, there can be absolutely no danger of infection.

Sputum becomes dried and powdered in one or two ways. It is either discharged upon the floor, where it dries and eventually becomes pulverized and scattered about; or the sputum is received into handkerchiefs, within the folds of which it soon dries up. Of the two practices, the latter is undoubtedly the more common and the more dangerous. Every time the handkerchief with its dried contents is removed from the pocket, abundant opportunity is given for the scattering of tubercle bacilli. That tubercle bacilli are present in dust, and hence in the air, of rooms occupied by consumptives, has already been mentioned.

Another observation regarding the tubercle bacillus deserves to be stated, as it materially increases the possibilities of prevention. The tubercle bacillus is practically an obligative, parasitic organism. In other words, it is compelled to grow within the living body. It is only under very special, highly favorable conditions that it can be caused to grow outside of the body. Thus, a special medium, as blood-serum or glycerin agar, and a suitable temperature approximating that of the body, must be supplied. On ordinary media and at ordinary temperatures it will not grow. So far as known, it cannot grow and multiply under the natural conditions existing outside of the body. The living tubercle bacilli which are contained in the sputum given off by a consumptive, do not and cannot multiply; they either eventually die, or, if by chance they are introduced into the living body, growth and multiplication may result.

In view of the facts that the dried, powdered sputum is practically the only source of infection, and that the tubercle bacillus is incapable of multiplication outside of the body, it follows that the distribution of this micro-organism in nature is not as universal as is so frequently supposed. The tubercle bacillus is not ubiquitous, and there is absolutely no reason, except imagination, to believe that each and every individual is

constantly inhaling, or has already inhaled, numerous tubercle bacilli. Tubercle bacilli have been found only within the immediate surroundings of tuberculous persons—that is, within the rooms which they occupy—and then only when the first principles of cleanliness as well as of prevention are neglected.

The measures for the prevention of the disease, though exceedingly simple, require, nevertheless, the most careful attention on the part of the diseased persons as well as on the part of those whose duty it is to see to their needs and wants. A consumptive is not only a source of danger to his associates, but is likewise a source of danger to himself. The measures necessary for the protection of others are equally important to himself, as the chances for the re-introduction of the tubercle bacillus and the direct infection of otherwise healthy organs or parts of organs are in inverse proportion to the care which he takes in preventing the scattering of the organisms.

The means, then, by which restriction and prevention can be secured, are the outcome of the study of the facts observed in connection with the disease. Under no condition should the sputum be discharged upon the floor, and when by accident this does occur it should not be allowed to become dry, but should at once be washed off. The handkerchief should, likewise, never be used for the collection of sputum. Should it, however, become accidentally soiled, as in sudden, violent coughing, it should be washed as soon and as thoroughly as possible in boiling water. The same applies to bedding, etc., whenever soiled in this manner.

The sputum should always be received in a covered receptacle, within the room as well as on the outside. This should preferably contain a little water to assist subsequent cleansing. The use of sand, sawdust, etc., within such receptacles is not desirable, as desiccation is thus favored and subsequent cleansing is rendered more difficult. The collected sputum may be disinfected, or it may be washed out with boiling water directly into a closet.

Direct contact with the lips of tuberculous persons should be carefully avoided. Instruments, playthings, dishes, eating utensils, etc., which have been in contact with the mouth, should never be used by others without thorough disinfection. A tuberculous person should never masticate food for children, or touch a bleeding wound with his mouth. Vessels which receive the urine or fæces—although these are usually free from bacilli

except in cases of secondary infection or in the event of primary infection of the intestine or urinary organs—should always be cleansed and washed as soon as possible.

The room occupied by the consumptive should be kept rigidly clean and thoroughly ventilated. Dry sweeping should never be resorted to. In the event of death or removal, the room, its furniture and equipments should be thoroughly cleansed, and such articles as can be subjected to disinfection with steam or boiling water should be so treated.

A tuberculous mother or a tuberculous nurse should not be allowed to nurse a child. The meat and milk from tuberculous animals, owing to the danger of giving rise to intestinal tuberculosis and possibly to the pulmonary form, should never be used unless thoroughly sterilized by boiling or cooking. The absolute prohibition of the disposal or sale of such articles is unquestionably impossible, and undoubtedly unnecessary.

Lastly, it is evident that these precautionary measures, simple as they are, can best be carried out in special hospitals for the care of consumptives. Absolute segregation, as practiced with leprosy in some countries, is unnecessary, and would give rise to much hardship, and would be impossible. A large portion of the sufferers can be taken care of intelligently and properly in their own families; on the other hand, a very large number (and this is especially true among the poorer classes) cannot, they can barely lead an existence, and so long as they do live under the usual conditions they are a constant and positive source of danger to the community. It is clearly the duty of the State to take care of those that cannot take care of themselves. For such the State should erect, support, and maintain hospitals in which the homeless, friendless consumptive can receive the best care that the teachings of science can indicate.

In discussing the same subject Dr. Henry B. Baker, the efficient secretary of the Michigan State Board of Health, says: It seems to me quite possible for a consumptive person to so care for the general safety that he may move freely in private and in public without danger of spreading the disease. But in order that this may be done, it is essential that the consumptive person have complete knowledge of the methods by which consumption is spread, and by which it is restricted. And he must have also a conscientious determination that the specific cause of the disease shall be promptly destroyed, and not permitted to endanger

the life of another person. If the patient has not that knowledge, is not capable of comprehending it, or if he has not also a conscientious regard for the safety of others, the public interests demand that such a person having well-developed consumption of the lungs shall be isolated, for the public welfare, because he has the most dangerous communicable disease now known to us. The best place for all such persons is in a special hospital, where under well-planned rules and trained attendants the danger of spreading the disease shall be reduced to the minimum.

It is evident that the idea of isolating consumptives is extremely unpleasant to many people, probably to all, unless through a study of the subject it has come to be realized how great is the price humanity pays for the freedom accorded to consumptives. I believe it is practicable for intelligent, conscientious consumptives to so act as to avoid spreading the disease, and to do this without any great degree of isolation. The question is restricted, therefore, to the propriety of enforcing care for the rights of the whole people upon those consumptives who are incapable of taking, or unwilling to take the necessary care to avoid jeopardizing the lives of those who may come within the circle of their infection ; for myself, I have no hesitation in expressing the belief that all such consumptives should be isolated. Consumptives in asylums, prisons, poor-houses, and reformatories should be isolated. And consumption is one important factor in filling all such local and State institutions.

The State Board of Health recommends the disinfection of all sputa of all consumptives. If all consumptives would do this the problem of restriction would be simple. It will probably be a long time before this can be brought about through the voluntary action of all individuals. The intelligent and honest portion of our people can soon be taught to do this. Then their danger will still continue to be great through ignorance, carelessness, and willfulness of the lower classes of inhabitants. When that time arrives, the greatest good to the greatest number, and especially the law of "survival of the fittest" will dictate that restrictive measures be something more than "moral suasion." Disinfection of the sputa will then need to be made compulsory, and those who cannot be relied upon to do that will need to be isolated from the public places.

REPORT OF THE BOARD OF CATTLE COMMISSIONERS.

CONCORD, January 1, 1895.

To His Excellency the Governor:

The State Board of Cattle Commissioners has continued its work during the year upon the lines contemplated by the Public Statutes, and submits the following brief report for the period from January 1, 1894, to January 1, 1895. The law under which this work has been performed was enacted for the special purpose of suppressing bovine tuberculosis, yet included in its scope other contagious and infectious diseases of animals. While the law confers upon the board all necessary authority for the most vigorous and thorough inspection of the live stock of the state, and power to issue any regulations that may be essential to the control of disease, the funds for carrying its provisions into effect are insufficient to make any general or systematic inspection. In view of this fact, the board has only been able to give attention to such cases as have been reported by the owners of stock, or the selectmen of towns, as manifesting evidences of disease. Attention has been given to every such notification, and when the circumstances warranted an investigation, it has been made. This has apparently met the approval of those receiving the service, but has come far short of meeting the demand for inspection of herds in the interest of public health. The prevalence of the disease and the wisdom of vigorous action for its suppression, seems to demand more extensive and exhaustive investigation than the present funds allow. It remains for the legislature to determine by its appropriation for this purpose to what extent this work shall be carried.

From January 1, 1894, to January 1, 1895, 383 stables have been inspected, from which 293 cattle have been condemned and destroyed, located in the counties as follows:

	Herds Inspected.	Cattle Destroyed.
Belknap,	6	5
Carroll,		
Cheshire,	65	32
Coös,	12	2
Grafton,	12	10
Hillsborough,	185	173
Merrimack,	50	33
Rockingham,	38	24
Strafford,	14	14
Sullivan,	1	

A post-mortem examination of all cattle killed has been made, and the errors of diagnosis have been so slight as to be of no consequence. According to the law, cattle condemned have been appraised upon a basis of health, and the owners have received one half of said appraisal. The average amount paid by the state for these cattle has been $14.92 per head.

During the year 24 horses have been condemned with glanders and destroyed.

From April 15, 1891, to January 1, 1895, there have been condemned and destroyed 607 cattle having tuberculosis, located in the counties as follows:

Belknap,	11
Carroll,	1
Cheshire,	43
Coös,	4
Grafton,	14
Hillsborough,	359
Merrimack,	92
Rockingham,	52
Strafford,	27
Sullivan,	4

No more effort has been made to discover the disease in one county than any other, as all investigations have been made upon the request of owners or selectmen. It is therefore not unreasonable to suppose that the disease exists in the various counties about in the relative proportion of cases found. The tuberculin test has

been used extensively in diagnosis of the disease, and, although not infallible, no error has yet been found from its use. The board now depends entirely upon it as a diagnostic agent. It is recommended by the best expert authorities, and is regarded as free from all harmful results.

The quarantine regulations previously established against Massachusetts cattle are still in force, and have been supplemented by similar regulations by Massachusetts authorities against New Hampshire cattle. It is quite probable that these can be raised when similar action shall have been taken by both states for the suppression of tuberculosis. In the opinion of the commission this matter should receive the most careful consideration of the legislature, and the adjustment of values of tuberculous cattle destroyed should be made with due regard for the personal safety of citizens as well as the property rights of stock owners.

The most eminent authorities substantiate the claim that no backward step in legislative action should be taken in suppressing this disease.

Respectfully submitted,

IRVING A. WATSON,
President.

N. J. BACHELDER,
Secretary.

TYPHOID FEVER IN NEW HAMPSHIRE.

Typhoid fever is preëminently a preventable disease, yet during the past eleven years, from 1883 to 1893 inclusive, there have been officially reported to the registrar of vital statistics, 1,736 deaths from this disease in New Hampshire. These figures probably do not represent all the deaths that have occurred during the period named, inasmuch as in the earlier years included in this calculation the registration of the causes of death was not as accurate as during the latter part of the period. It is therefore quite certain that the actual mortality is somewhat in excess of the figures given. It is estimated by careful investigations that for every fatal case of typhoid fever there are, upon the average, ten non-fatal cases. We may, therefore, reasonably conclude that in the eleven years past there have been over 17,000 cases of this disease in this state.

In Table No. 1 will be found a record of the total number of deaths reported by towns from 1883 to 1893 inclusive, also the number of reported deaths from typhoid fever by towns for the period named.

The object of this table is to place upon record, in as concise a manner as possible, the mortality for the period given, and also to show the number of deaths returned from typhoid fever, and the distribution of this disease both by localities and years. This table may not accurately represent the distribution of typhoid fever, inasmuch as the disease doubtless has prevailed in some towns in certain years without fatal results, and hence would not be represented in the table.

The table also represents the percentage of mortality from typhoid fever to the total mortality for the eleven years mentioned.

TABLE No. 1.

Showing total mortality and typhoid fever mortality by counties and towns from 1883 to 1893 inclusive.

ROCKINGHAM COUNTY.		1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	Total.	Percentage.
Atkinson	Total mortality	8	8	5	12	9	10	11	10	2	22	5	102	
	Typhoid fever							1					2	1.96
Auburn	Total mortality	12	23	8	9	7	12	19	10	15	10	15	140	
	Typhoid fever	1			1					1	1		4	2.85
Brentwood	Total mortality	50	34	39	26	32	14	36	28	28	30	45	362	
	Typhoid fever	2		1					1	1		1	6	1.65
Candia	Total mortality	12	15	30	24	28	20	21	13	27	31	23	244	
	Typhoid fever							1		1	1		3	1.23
Chester	Total mortality	30	17	17	20	19	15	21	20	24	17	15	215	
	Typhoid fever	3	1			1		1	1	1	1	1	10	4.65
Danville	Total mortality		6	10	15	11	8	6	13	8	10	13	100	
	Typhoid fever				1	1							2	2.00
Deerfield	Total mortality	28	30	31	29	25	40	29	30	35	33	24	334	
	Typhoid fever				2		1	1					4	1.19
Derry	Total mortality	31	38	44	39	37	46	34	44	42	47	56	458	
	Typhoid fever		3	3	4	1		5		4			20	4.36
East Kingston	Total mortality	5	10	9	15	7	8	16	11	13	15	11	120	
	Typhoid fever			1						1			2	1.66
Epping	Total mortality	23	26	40	37	25	39	39	45	53	48	46	421	
	Typhoid fever	2			2				2	2			8	1.90
Exeter	Total mortality	40	47	50	67	60	75	66	85	61	80	99	730	
	Typhoid fever	1	1	1	1			3	1	1	1		10	1.37
Fremont	Total mortality	7	9	10	9	11	15	10	19	7	19	8	124	
	Typhoid fever													

TABLE No. 1.—*Continued.*

ROCKINGHAM COUNTY.		1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	Total.	Percentage.
Greenland	Total mortality	11	12	11	12	14	9	12	18	15	9	16	139	
	Typhoid fever	1				1	1		1	1			5	3.59
Hampstead	Total mortality	6	20	15	11	9	13	15	17	14	12	11	143	
	Typhoid fever		1	1								1	3	2.09
Hampton	Total mortality	14	32	19	13	16	19	14	33	32	11	11	214	
	Typhoid fever						1	1	2		2		6	2.80
Hampton Falls	Total mortality	12	14	7	12	13	12	5	9	6	11	6	107	
	Typhoid fever	2	1										3	2.80
Kensington	Total mortality	2	7	13	10	12	6	10	10	10	10	7	97	
	Typhoid fever			1						1			2	2.05
Kingston	Total mortality	13	19	21	20	15	25	25	37	13	10	22	220	
	Typhoid fever						1						1	.45
Londonderry	Total mortality	17	10	20	21	20	15	14	23	29	32	32	233	
	Typhoid fever				1							1	2	.85
Newcastle	Total mortality	7	11	7	7	7	5	13	10	4	10	8	89	
	Typhoid fever													
Newington	Total mortality	6	8	9	7	8	9	8	6	12	7	6	86	
	Typhoid fever						1						1	1.16
Newmarket	Total mortality	23	37	59	90	64	64	62	55	66	71	59	650	
	Typhoid fever	1	3					1	1	2		1	9	1.38
Newton	Total mortality	5	13	15	22	33	27	16	26	21	25	17	220	
	Typhoid fever		1	1			2		1	3			8	3.64
North Hampton	Total mortality	6	8	11	6	2	5	10	7	13	9	9	86	
	Typhoid fever										1		1	1.16

Northwood	Total mortality	16	16	23	24	19	23	21	29	30	24	27	252	
	Typhoid fever	1			2					2	1	1	7	2.78
Nottingham	Total mortality	8	18	14	19	23	16	18	28	9	23	18	194	
	Typhoid fever													
Plaistow	Total mortality	17	16	9	19	6	13	10	17	20	11	22	171	
	Typhoid fever	1	1	2	2					1			7	4.09
Portsmouth	Total mortality	156	217	238	213	170	196	194	258	208	210	238	2,298	
	Typhoid fever	6	5	4	3	3	1	1	1	3	2	1	30	1.31
Raymond	Total mortality	13	21	16	21	31	16	18	14	18	21	25	214	
	Typhoid fever			2	1					1	1		5	2.33
Rye	Total mortality	8	23	19	22	21	19	16	11	15	14	17	185	
	Typhoid fever		1		2	1	1				1		6	3.24
Salem	Total mortality	28	24	26	35	25	29	19	32	37	42	36	333	
	Typhoid fever		1	1		1				2	1		6	1.80
Sandown	Total mortality	7	12	8	8	8	11	6	7	5	7	11	90	
	Typhoid fever	1			1								2	2.22
Seabrook	Total mortality	36	30	21	23	25	16	23	43	40	42	33	332	
	Typhoid fever		1						1	1			3	.90
South Hampton	Total mortality	7	8	8	7	6	7	4	9	10	9	6	81	
	Typhoid fever		2										2	2.47
South Newmarket	Total mortality	14	14	9	19	17	18	11	15	17	18	15	167	
	Typhoid fever				1						1		2	1.19
Stratham	Total mortality	13	8	6	11	12	11	10	9	11	17	7	115	
	Typhoid fever										2		2	1.74
Windham	Total mortality	8	12	14	9	19	10	13	14	21	9	14	143	
	Typhoid fever	1				1				1	1	1	5	3.49

TABLE No. 1.—*Continued.*

STRAFFORD COUNTY.		1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	Total.	Percentage.
Barrington	Total mortality	27	16	17	22	34	18	22	23	17	37	23	256	
	Typhoid fever	1		1			1		1			1	5	1.95
Dover	Total mortality	205	253	303	222	255	283	252	317	308	331	330	3,059	
	Typhoid fever	4	4	7	1	8	2	2	3	2	5	5	43	1.41
Durham	Total mortality	19	3	6	11	11	11	12	16	19	27	10	145	
	Typhoid fever							3	1				4	2.76
Farmington	Total mortality	39	54	62	44	34	52	55	61	52	63	40	556	
	Typhoid fever			1	1	1	2	1	3		1		10	1.79
Lee	Total mortality	15	5	10	7	14	15	6	6	13	12	12	115	
	Typhoid fever				1								1	.87
Madbury	Total mortality	1	11	6	5	3	3	4	4	7	9	4	57	
	Typhoid fever		1										1	1.75
Middleton	Total mortality	4	4	1	1	4	3	9	5	11	5	3	50	
	Typhoid fever													
Milton	Total mortality	9	26	16	10	11	7	17	23	30	22	23	194	
	Typhoid fever					1				1	1		3	1.54
New Durham	Total mortality	5	7	10	14	16	12	18	16	13	14	9	134	
	Typhoid fever	1					2						3	2.24
Rochester	Total mortality	52	106	57	96	111	112	104	116	144	134	113	1,145	
	Typhoid fever	1	1	1	4	2		3	1	5		3	21	1.83
Rollinsford	Total mortality	18	16	24	21	20	24	27	26	30	47	34	287	
	Typhoid fever	1			1				1		1	1	5	1.74
Somersworth	Total mortality	78	106	92	125	127	127	139	162	143	137	125	1,361	
	Typhoid fever	4	8	2	12	3	5	9	7	4	3	7	64	4.70
Strafford	Total mortality	22	20	15	31	33	21	26	26	22	26	16	258	
	Typhoid fever	2			2	3	1	1	2			3	14	5.43

TABLE No. 1.—*Continued.*

BELKNAP COUNTY.		1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	Total.	Percentage.
Alton	Total mortality	30	26	17	22	26	23	37	32	26	33	26	298	
	Typhoid fever	1			1	1		1	2				6	2.01
Barnstead	Total mortality	24	21	11	12	16	15	28	21	29	26	18	221	
	Typhoid fever		2		1	1			1				5	2.26
Belmont	Total mortality	22	25	27	22	17	42	21	20	19	34	20	269	
	Typhoid fever	1			2				1		2		6	2.23
Centre Harbor	Total mortality	5	9	5	10	5	8	3	8	7	8	6	74	
	Typhoid fever													
Gilford	Total mortality	48	41	48	62	75	51	53	55	59	68	6	569	
	Typhoid fever	2	1	2	11	2	4		4	1			27	4.74
Gilmanton	Total mortality	30	25	27	18	20	25	20	21	15	34	26	261	
	Typhoid fever	1				1							2	.76
Laconia	Total mortality	52	58	78	111	117	127	116	98	163	129	174	1,223	
	Typhoid fever		2		7	6	2	6	3	1	1	4	32	2.62
Meredith	Total mortality	12	31	26	30	41	36	34	30	23	32	24	319	
	Typhoid fever	1	3	1		1					1		7	2.19
New Hampton	Total mortality	8	13	11	15	15	20	21	25	11	25	21	185	
	Typhoid fever				1			1	1				3	1.62
Sanbornton	Total mortality	22	22	19	28	15	20	24	30	20	23	20	243	
	Typhoid fever		1	1	4					1			7	2.88
Tilton	Total mortality	9	14	20	32	22	22	32	34	20	28	28	261	
	Typhoid fever	2	5	5	6	1	2	1	1	2			25	9.57

TABLE No. 1.—*Continued.*

CARROLL COUNTY.		1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	Total.	Percentage.
Albany	Total mortality	3	.....	4	4	2	3	3	5	1	3	5	33	.....
	Typhoid fever	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bartlett	Total mortality	6	13	14	12	13	15	17	13	20	22	24	169	.....
	Typhoid fever	.....	.....	5	.....	.....	.....	.....	.....	.....	.....	.....	5	2.96
Brookfield	Total mortality	15	7	5	7	7	4	13	2	3	4	6	73	.....
	Typhoid fever	.....	.....	1	.....	.....	.....	.....	1	.....	.....	.....	2	2.77
Chatham	Total mortality	9	14	4	2	4	6	3	6	8	4	2	62	.....
	Typhoid fever	.....	.....	.....	.....	.....	1	.....	1	.....	.....	.....	2	3.23
Conway	Total mortality	20	33	33	33	25	33	41	30	48	49	42	387	.....
	Typhoid fever	.....	1	1	1	3	1	1	.....	.....	1	1	10	2.58
Eaton	Total mortality	5	5	7	6	8	8	4	8	4	4	8	67	.....
	Typhoid fever	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Effingham	Total mortality	12	18	15	11	17	14	17	13	15	16	13	161	.....
	Typhoid fever	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.62
Freedom	Total mortality	4	4	8	11	7	13	7	18	10	12	9	103	.....
	Typhoid fever	1	1	.....	.....	.....	.....	1	.....	.....	.....	.....	3	2.91
Hart's Location	Total mortality	.....	.....	.....	.....	.....	.....	.....	2	2	3	1	8	.....
	Typhoid fever	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Jackson	Total mortality	6	4	2	5	4	4	6	5	15	8	4	63	.....
	Typhoid fever	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1	1.59
Madison	Total mortality	5	12	10	7	16	11	7	11	12	6	16	113	.....
	Typhoid fever	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Moultonborough	Total mortality	20	22	27	24	15	29	17	27	19	19	21	240	1.25
	Typhoid fever	1	.....	1	1	.....	.....	.....	.....	.....	.....	.....	3	.....

Ossipee	Total mortality	39	39	32	51	32	44	27	34	44	36	26	404	
	Typhoid fever		1			1	1						3	.74
Sandwich	Total mortality	32	43	24	20	29	39	29	26	32	29	30	333	
	Typhoid fever	3					1	1					5	1.50
Tamworth	Total mortality	6	23	14	24	19	20	17	15	27	18	10	193	
	Typhoid fever						1						1	.52
Tuftonborough	Total mortality	17	22	17	17	14	16	24	12	15	26	17	197	
	Typhoid fever	1						1			1		3	1.52
Wakefield	Total mortality	24	19	15	18	27	14	22	34	27	34	23	257	
	Typhoid fever	1						3		2			6	2.33
Wolfeborough	Total mortality	30	55	38	51	55	55	44	42	39	49	48	506	
	Typhoid fever		2		1	1	1						5	.99

TABLE No. 1.—*Continued.*

MERRIMACK COUNTY.		1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	Total.	Percentage.
Allenstown	Total mortality	22	8	11	18	13	18	11	27	23	27	36	214	
	Typhoid fever	3				1		1	4				9	4.21
Andover	Total mortality	16	13	25	23	13	15	20	12	24	21	22	204	
	Typhoid fever				1			1					2	.98
Boscawen	Total mortality	39	24	21	27	42	51	49	47	48	39	42	429	
	Typhoid fever			1		1	1	1		1			5	1.18
Bow	Total mortality	12	12	16	11	13	13	9	12	4	19	21	142	
	Typhoid fever													
Bradford	Total mortality	15	17	14	25	20	19	15	15	20	16	25	201	
	Typhoid fever	1	1					1					3	1.49
Canterbury	Total mortality	11	15	20	12	11	20	17	18	19	25	20	188	
	Typhoid fever		1					1			1		3	1.59
Chichester	Total mortality	4	14	10	16	7	18	7	11	17	10	7	121	
	Typhoid fever			1								1	2	1.65
Concord	Total mortality	289	277	264	279	307	342	336	372	344	415	437	3,662	
	Typhoid fever	11	4	4	6	7	13	6	9	5	2	2	69	1.88
Danbury	Total mortality	11	5	11	13	13	16	17	15	9	13	11	134	
	Typhoid fever			1	2		3		1		1		8	5.97
Dunbarton	Total mortality	15	12	8	6	14	14	8	10	9	13	10	119	
	Typhoid fever													
Epsom	Total mortality	9	17	11	18	24	7	11	14	11	15	14	151	
	Typhoid fever		3										3	1.99
Franklin	Total mortality	59	52	56	55	74	76	55	70	63	77	62	699	
	Typhoid fever	3	1	3	3	3	3	2	4		3	2	27	3.86
Henniker	Total mortality	21	33	28	24	24	17	26	34	24	27	23	281	
	Typhoid fever	2					1		1				4	1.42

Hill	Total mortality	14	10	7	14	12	15	12	6	6	14	10	120	
	Typhoid fever			1	2		1						4	3.33
Hooksett	Total mortality	25	16	16	21	24	38	30	24	29	34	39	296	
	Typhoid fever		1				4	3	1			2	11	3.71
Hopkinton	Total mortality	50	31	45	46	36	27	38	37	36	50	28	424	
	Typhoid fever	1	1	1							1	1	5	1.18
Loudon	Total mortality	12	20	25	31	24	18	26	26	30	10	19	241	
	Typhoid fever	1	2	1	2								6	2.49
Newbury	Total mortality	12	7	12	10	7	15	7	2	15	10	8	105	
	Typhoid fever					1	1						2	1.90
New London	Total mortality	11	11	9	8	11	18	7	21	14	4	16	130	
	Typhoid fever	2											2	1.54
Northfield	Total mortality	4	8	8	11	13	23	17	19	15	23	22	163	
	Typhoid fever				1	1		1				1	4	2.46
Pembroke	Total mortality	26	24	29	43	28	30	26	55	50	67	63	441	
	Typhoid fever	1	2	1	3		2	1	6	5	1	1	23	5.21
Pittsfield	Total mortality	18	39	49	43	42	48	55	50	36	49	40	469	
	Typhoid fever		1		1		2	1	1	1	1	2	10	2.13
Salisbury	Total mortality	8	6	13	13	9	14	16	9	23	13	13	137	
	Typhoid fever									3			3	2.19
Sutton	Total mortality	16	16	22	12	16	13	18	23	25	17	19	197	
	Typhoid fever	2											2	1.02
Warner	Total mortality	24	19	30	30	21	12	26	30	35	29	34	290	
	Typhoid fever					1	2	1			1	1	6	2.07
Webster	Total mortality	9	8	20	12	8	10	16	4	8	12	5	112	
	Typhoid fever				3			2					5	4.46
Wilmot	Total mortality	10	22	16	12	9	13	15	20	14	15	17	163	
	Typhoid fever			1			1			1			3	1.84

TABLE No. 1.—*Continued.*

HILLSBOROUGH COUNTY.		1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	Total.	Percentage.
Amherst	Total mortality	15	29	16	18	26	16	21	24	22	19	36	242	
	Typhoid fever				2					1			3	1.24
Antrim	Total mortality	21	25	25	32	13	16	11	27	18	29	31	248	
	Typhoid fever	2	1	1		1					1		6	2.42
Bedford	Total mortality	8	7	22	29	26	20	16	13	24	25	31	221	
	Typhoid fever	2	1	1	1	2	1	1				1	10	4.52
Bennington	Total mortality	25	9	9	11	9	9	13	11	14	12	8	130	
	Typhoid fever		1	2					1			1	5	3.84
Brookline	Total mortality	20	11	13	16	15	5	16	14	9	10	9	138	
	Typhoid fever	2											2	1.45
Deering	Total mortality	8	6	14	8	12	9	11	20	5	13	12	118	
	Typhoid fever	1	1								1		3	2.54
Francestown	Total mortality	15	13	9	12	11	22	22	15	17	13	12	161	
	Typhoid fever				1			2	2	1		1	7	4.35
Goffstown	Total mortality	20	29	35	27	23	36	31	34	36	35	21	327	
	Typhoid fever						1	1					2	.61
Greenfield	Total mortality	19	5	19	14	12	14	16	9	11	9	12	140	
	Typhoid fever						1						1	.71
Greenville	Total mortality	20	18	20	22	21	31	30	26	22	40	34	284	
	Typhoid fever				1		2	5	2	1	2	1	14	4.93
Hancock	Total mortality	11	16	15	15	16	11	11	14	14	10	19	152	
	Typhoid fever													
Hillsborough	Total mortality	29	21	13	22	43	49	20	40	40	45	45	367	
	Typhoid fever			1	2	1	3	1					8	2.18

Hollis	Total mortality	1	17	22	25	21	12	11	28	21	20	15	193	
	Typhoid fever													
Hudson	Total mortality	16	13	18	17	17	22	18	23	23	23	27	217	
	Typhoid fever		1			2			1				4	1.84
Litchfield	Total mortality	3	4	5	3	5	10	3	6	6	4	4	53	
	Typhoid fever													
Lyndeborough	Total mortality	9	17	7	17	11	13	14	13	12	17	16	146	
	Typhoid fever		2				1		1				4	2.73
Manchester	Total mortality	779	819	821	786	862	929	838	1,030	942	1,038	1,071	9,915	
	Typhoid fever	21	17	23	18	21	17	22	17	23	6	14	199	2.01
Mason	Total mortality	7	7	11	11	7	8	12	10	11	11	11	109	
	Typhoid fever		1										1	.92
Merrimack	Total mortality	12	17	10	16	17	16	20	10	16	22	16	172	
	Typhoid fever					1							1	.58
Milford	Total mortality	52	51	43	52	50	47	50	43	50	60	56	554	
	Typhoid fever			1				3	5	1			10	1.81
Mont Vernon	Total mortality	12	7	12	4	10	6	3	5	13	4	5	81	
	Typhoid fever						1	1					2	2.47
Nashua	Total mortality	277	306	343	424	276	329	347	346	408	402	390	3,848	
	Typhoid fever	3	3	8	10	17	15	4	3	15	7	6	91	2.36
New Boston	Total mortality	24	21	23	22	22	17	21	16	15	24	23	228	
	Typhoid fever				1								1	.44
New Ipswich	Total mortality	30	20	17	24	21	22	21	30	19	24	12	240	
	Typhoid fever		1		3								4	1.66
Pelham	Total mortality	14	11	22	15	10	10	11	13	14	24	24	168	
	Typhoid fever	2	1		1					2			6	3.57
Peterborough	Total mortality	41	47	43	48	44	49	50	50	51	46	42	511	
	Typhoid fever	1	1	1	2	2			2	1			10	1.95
Sharon	Total mortality	3	2	3	1	5	1	2	3	2	1	2	25	
	Typhoid fever													

TABLE No. 1.—*Continued.*

HILLSBOROUGH COUNTY.—*Continued.*		1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	Total.	Percentage.
Temple	Total mortality	11	5	8	9	4	6	3	4	8	6	5	69	
	Typhoid fever				2				1	1			4	5.79
Weare	Total mortality	34	27	43	32	24	36	30	26	38	30	34	354	
	Typhoid fever	1	2		1	1			1	1		1	8	2.26
Wilton	Total mortality	15	73	20	56	61	75	67	66	74	74	78	659	
	Typhoid fever		1		3		2	2	2	2		1	13	1.97
Windsor	Total mortality		2			3		1	4	2	2	2	16	
	Typhoid fever										2		2	1.25

TABLE No. 1.—*Continued.*

CHESHIRE COUNTY.		1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	Total.	Percentage.
Alstead	Total mortality	9	14	15	19	25	13	16	26	15	18	16	186	.....
	Typhoid fever	.....	.....	1	1	.....	.....	.....	.....	.....	.....	.....	2	1.06
Chesterfield	Total mortality	11	21	17	10	17	23	18	17	19	14	18	135	.....
	Typhoid fever	.....	1	.....	.....	.....	1	1	.....	.....	.....	.....	3	2.22
Dublin	Total mortality	5	9	16	7	6	5	12	7	5	10	5	87	.....
	Typhoid fever	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1	1.15
Fitzwilliam	Total mortality	19	19	15	16	23	28	22	19	18	26	30	235	.....
	Typhoid fever	.....	1	.....	.....	1	.....	.....	.....	.....	.....	.....	2	.85
Gilsum	Total mortality	16	16	13	14	12	10	9	8	17	8	8	131	.....
	Typhoid fever	1	.....	.....	.....	1	.....	.....	.....	1	1	.....	4	3.05
Harrisville	Total mortality	25	9	15	9	9	6	9	13	4	10	12	121	.....
	Typhoid fever	2	.....	1	.....	.....	.....	.....	.....	.....	1	1	5	4.13
Hinsdale	Total mortality	25	21	29	40	24	21	29	27	25	39	42	322	.....
	Typhoid fever	.....	1	2	1	1	.....	4	1	.....	.....	.....	10	3.11
Jaffrey	Total mortality	31	30	28	25	28	23	23	39	28	26	31	312	.....
	Typhoid fever	2	.....	1	.....	.....	.....	.....	1	1	.....	.....	5	1.60
Keene	Total mortality	136	125	114	125	132	83	135	156	126	138	159	1,429	.....
	Typhoid fever	3	3	4	3	.....	2	1	1	.....	2	3	22	1.54
Marlborough	Total mortality	11	22	31	29	25	15	24	21	20	33	41	272	.....
	Typhoid fever	.....	.....	.....	2	.....	.....	.....	1	1	.....	.....	4	1.47
Marlow	Total mortality	4	14	12	11	7	8	14	8	15	17	13	123	.....
	Typhoid fever	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.81
Nelson	Total mortality	8	5	6	5	1	4	7	11	2	2	5	56	.....
	Typhoid fever	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1.79

TABLE No. 1.—*Continued.*

CHESHIRE COUNTY.—*Continued.*		1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	Total.	Percentage.
Richmond	Total mortality	8	16	15	14	14	14	13	9	13	14	14	144	
	Typhoid fever		3	1	3				1		1		9	6.25
Rindge	Total mortality	15	20	8	23	13	17	29	24	17	20	25	211	
	Typhoid fever			1				1	2	2	1		7	3.31
Roxbury	Total mortality	1	2			2		2	2	1	6	3	19	
	Typhoid fever													
Stoddard	Total mortality	4	13	14	5	5	6	10	6	9	11	11	94	
	Typhoid fever										1		1	1.06
Sullivan	Total mortality	3	4	4	4	2	2	9	3	6	4	2	43	
	Typhoid fever									1			1	2.33
Surry	Total mortality	7	1	4	5	6	6	4	5	4	6	3	51	
	Typhoid fever	1											1	1.96
Swanzey	Total mortality	17	23	28	21	34	29	29	33	24	39	35	312	
	Typhoid fever		2	2	1		2	1		2	1		11	3.52
Troy	Total mortality	10	20	12	12	8	5	10	14	14	31	16	152	
	Typhoid fever		1										1	.65
Walpole	Total mortality	26	40	30	30	38	32	32	53	39	64	39	423	
	Typhoid fever	1							1			1	3	.71
Westmoreland	Total mortality	14	20	28	15	24	12	33	25	31	30	29	261	
	Typhoid fever		1						2			1	4	1.53
Winchester	Total mortality	13	33	40	36	27	28	36	31	30	42	38	354	
	Typhoid fever		2	2	2	3	1	2		1	1		14	3.95

TABLE No. 1.—*Continued.*

SULLIVAN COUNTY.		1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	Total.	Percentage.
Acworth	Total mortality	18	14	19	19	15	26	19	10	17	15	19	191	
	Typhoid fever	1											1	.52
Charlestown	Total mortality	13	23	23	31	12	26	26	39	23	34	35	285	
	Typhoid fever				2			1				1	4	1.40
Claremont	Total mortality	73	82	49	88	84	97	94	102	74	103	101	947	
	Typhoid fever	3	3	1		3	2	2		1	2	1	18	1.90
Cornish	Total mortality	13	8	21	12	17	17	19	17	20	22	21	187	
	Typhoid fever			1	1						1	1	4	2.14
Croydon	Total mortality	20	7	13	9	5	10	10	16	8	11	11	120	
	Typhoid fever				1								1	.83
Goshen	Total mortality	10	9	10	10	10	12	9	5	7	8	9	99	
	Typhoid fever	2											2	2.02
Grantham	Total mortality	7	5	5	7	8	7	8	10	6	16	8	87	
	Typhoid fever	1	1							1			3	3.45
Langdon	Total mortality	5	10		10	2	4	5	11	7	6	8	68	
	Typhoid fever		1						1				2	2.94
Lempster	Total mortality	9	4	4	13	7	11	14	11	7	9	13	102	
	Typhoid fever													
Newport	Total mortality	38	36	21	45	45	46	46	45	43	80	66	511	
	Typhoid fever			1	2	1	1	1			5	4	15	2.93
Plainfield	Total mortality	11	22	19	24	18	12	13	12	8	14	21	174	
	Typhoid fever	2		1						1		1	5	2.89
Springfield	Total mortality	6	12	3	8	9	12	13	13	12	17	15	120	
	Typhoid fever													

TABLE No. 1.—*Continued.*

SULLIVAN COUNTY.—*Continued.*		1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	Total.	Percentage.
Sunapee	Total mortality	15	13	6	17	20	9	14	12	16	15	19	156	.....
	Typhoid fever.	3	.....	.....	.....	1	.....	.....	.....	2	.....	.....	6	3.84
Unity	Total mortality	13	12	19	19	22	21	18	21	21	19	10	195	.....
	Typhoid fever	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....	2	1.02
Washington	Total mortality	3	16	13	16	9	18	6	8	11	13	6	119	.....
	Typhoid fever	1	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	2	1.68

TABLE No. 1.—*Continued.*

GRAFTON COUNTY.		1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	Total.	Percentage.
Alexandria	Total mortality	5	10	3	12	18	14	11	21	8	21	14	137	
	Typhoid fever								1				1	.73
Ashland	Total mortality	3	2	13	12	10	20	16	19	21	27	21	164	
	Typhoid fever		1								1		2	1.22
Bath	Total mortality	12	13	8	15	15	16	15	10	13	8	16	141	
	Typhoid fever	2	2	1	2					2			9	6.38
Benton	Total mortality		2		2	2	2	5	5	5	7	7	37	
	Typhoid fever							1	1				2	5.41
Bethlehem	Total mortality	15	13	16	19	18	9	18	25	16	13	26	188	
	Typhoid fever	1	1	1					1	2			6	3.19
Bridgewater	Total mortality	3	8	10	11	4	6	6	8	4	12	5	77	
	Typhoid fever				1							1	2	2.59
Bristol	Total mortality	10	39	24	28	30	31	35	28	30	28	27	310	
	Typhoid fever	1				1	4	5	1	3		1	16	5.16
Campton	Total mortality	17	13	15	20	21	13	25	17	16	18	21	196	
	Typhoid fever	1				1	1		1				4	2.04
Canaan	Total mortality	14	19	35	34	22	26	27	25	20	36	42	300	
	Typhoid fever			1	2		3	1	1		1		9	3.00
Dorchester	Total mortality	7	6	6	4	5	8	7	10	6		5	64	
	Typhoid fever				1	1	1		1	1			5	7.81
Easton	Total mortality	7	6	5	5	3	5	2	9	2	3	4	51	
	Typhoid fever	1											1	1.96
Ellsworth	Total mortality	3	2	7	1	2	1	5	2	1	4	2	30	
	Typhoid fever													

TABLE No. 1.—*Continued.*

GRAFTON COUNTY.—*Continued.*		1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	Total.	Percentage.
Enfield	Total mortality	29	33	27	31	35	27	27	20	24	39	21	313	
	Typhoid fever	1	1		1				1		1	1	6	1.92
Franconia	Total mortality	7	11	7	7	6	15	11	11	9	6	7	97	
	Typhoid fever	1	1							2			4	4.12
Grafton	Total mortality	12	26	17	15	14	15	17	5	20	28	18	187	
	Typhoid fever		1			1			1				3	1.60
Groton	Total mortality	5	8	12	15	7	7	5	13	6	21	6	105	
	Typhoid fever					1							1	.95
Hanover	Total mortality	22	36	27	31	31	29	39	25	31	27	33	331	
	Typhoid fever	2	1						1	2			6	1.81
Haverhill	Total mortality	55	36	46	36	43	26	40	62	71	57	59	531	
	Typhoid fever	3	2		3		1	3	2	2		6	22	4.14
Hebron	Total mortality	4	7	3	6	8	7	8	4	5	6	4	62	
	Typhoid fever					1				1			2	3.23
Holderness	Total mortality	10	14	11	14	18	11	9	12	10	17	9	135	
	Typhoid fever	1		1	2		1						5	3.70
Landaff	Total mortality	4	5	9	5	13	9	9	12	11	8	10	95	
	Typhoid fever		1										1	1.05
Lebanon	Total mortality	46	51	66	48	46	58	37	73	51	91	77	644	
	Typhoid fever				1		1	1		2	2		7	1.09
Lincoln	Total mortality	2			1	2	1	1			2	8	17	
	Typhoid fever	1										1	2	11.76
Lisbon	Total mortality	27	28	21	31	28	35	25	32	44	39	40	350	
	Typhoid fever		1		2			1					4	1.14

Littleton	Total mortality	56	55	50	49	47	49	46	46	57	74	61	590	
	Typhoid fever		2	2			1			1	2	3	11	1.86
Livermore	Total mortality	1	2				3					1	7	
	Typhoid fever													
Lyman	Total mortality	19	9	9	13	6	10	14	6	17	7	7	117	
	Typhoid fever	1					1	1					3	2.56
Lyme	Total mortality	19	40	18	18	29	23	27	28	28	23	26	279	
	Typhoid fever			1		1	1						3	1.07
Monroe	Total mortality	7	9	7	4	9	18	8	7	6	10	6	91	
	Typhoid fever	1	1	1		1							4	4.39
Orange	Total mortality	3	6	4	4	2	7	3	3	1	4	4	41	
	Typhoid fever				1								1	2.44
Orford	Total mortality	19	21	15	19	10	27	29	18	21	21	16	216	
	Typhoid fever	1			2					1			4	1.85
Piermont	Total mortality	13	14	17	20	11	9	7	11	7	9	7	125	
	Typhoid fever				2								2	1.60
Plymouth	Total mortality	12	34	34	29	22	36	21	22	26	32	26	294	
	Typhoid fever						2			2	1	1	6	2.04
Rumney	Total mortality	21	13	21	11	19	22	22	23	22	20	15	209	
	Typhoid fever			1				2	1	2		1	7	3.35
Thornton	Total mortality	8	12	9	18	16	16	12	7	12	8	15	133	
	Typhoid fever	2					1					1	4	3.01
Warren	Total mortality	14	14	11	6	11	17	10	7	12	9	13	124	
	Typhoid fever			1	1	1	2	1					6	4.84
Waterville	Total mortality			1		1				1		1	4	
	Typhoid fever													
Wentworth	Total mortality	10	18	24	19	14	16	17	17	9	7	10	161	
	Typhoid fever		1				1		1				3	1.86
Woodstock	Total mortality	5	2	4	3	4	11	9	8	5	7	6	64	
	Typhoid fever	1											1	1.56

TABLE No. 1.—*Continued.*

COÖS COUNTY.		1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	Total.	Percentage.
Berlin	Total mortality	13	33	19	17	109	46	79	41	141	105	143	746	
	Typhoid fever	1				8	5	1	1	8	7	7	38	5.09
Carroll	Total mortality	11	6		5	13	12	13	18	11	10	6	105	
	Typhoid fever							1					1	.95
Clarksville	Total mortality	3	2	2	2	2	2	5	5	5	7	6	41	
	Tpphoid fever		1					1			1		3	7.32
Colebrook	Total mortality	12	30	25	28	28	26	24	27	35	34	22	291	
	Typhoid fever	2	1	3		2	1	4			2		15	5.15
Columbia	Total mortality	6	6	9	7	5	11	10	9	9	6	9	87	
	Typhoid fever													
Dalton	Total mortality	7	8	9	2	9	8	11	12	7	8	7	88	
	Typhoid fever		1										1	1.14
Dummer	Total mortality	2	2	3	5	2	4	4	3	1	5	1	32	
	Typhoid fever	1			1						1	1	4	12.50
Errol	Total mortality	3	1	3	1	2	1	2	2	6	2		23	
	Typhoid fever							1			1		2	8.69
Gorham	Total mortality	16	7	14	6	26	10	7	23	13	32	12	166	
	Typhoid fever				1		1	1	1		3	1	8	4.82
Jefferson	Total mortality	5	9	13	14	14	12	11	14	22	20	12	146	
	Typhoid fever					2	1		2			1	6	4.11
Lancaster	Total mortality	30	29	33	57	47	48	36	46	65	48	40	479	
	Typhoid fever			1					1		3	2	7	1.46
Milan	Total mortality	8	15	8	7	9	11	14	17	11	17	6	123	
	Typhoid fever	1	1		1		1		1				5	4.06

Millsfield	Total mortality				1					2			3	
	Typhoid fever													
Northumberland	Total mortality	5	18	10	15	18	28	22	14	28	20	25	203	
	Typhoid fever	1	1		1		1	1		1	1	1	8	3.94
Pittsburg	Total mortality	4	2	5	7	5	5	7	8	10	5	14	72	
	Typhoid fever			1						1		2	4	5.50
Randolph	Total mortality	3	2	2	1	1	5	2		2	6	2	26	
	Typhoid fever						1						1	3.84
Shelburne	Total mortality	2	2	5	2		4	5		2	1	2	25	
	Typhoid fever													
Stark	Total mortality	8	10	9	7	7	5	12	12	10	16	8	104	
	Typhoid fever	2	2	2			1				1		8	7.69
Stratford	Total mortality	8	21	11	18	9	23	20	20	14	25	28	197	
	Typhoid fever		1	1	3		1	1	1		1	1	10	5.07
Stewartstown	Total mortality	9	29	17	14	11	18	18	12	23	15	23	189	
	Typhoid fever		3			2				1			6	3.17
Whitefield	Total mortality	26	31	30	40	27	35	45	46	42	38	29	389	
	Typhoid fever	1	3		1	2	1						8	2.06

Table No. 2 consists of diagrams showing the relative mortality from typhoid fever to the total mortality by towns from 1883 to 1893 inclusive, also the average for the state.

These diagrams represent graphically the actual variation in the mortality rate from this disease for the period given. The dotted line represents the average death rate from typhoid fever for the entire state, and the variations from this average are readily seen at a glance. A closer examination of this diagram in connection with Table No. 1 shows that in the instance of towns with a very small population, the mortality line as well as the percentage may be seriously affected by one or two deaths even, as for illustration, in Dorchester, Lincoln, Dummer, etc., and this should be taken into account in considering these figures in towns with a very small population. The rates, however, are actual, and are given more for the purpose of maintaining a record, which in connection with similar statistics gathered in years to come, may be of considerable advantage in determining questions relating to the development and prevalence of this disease.

In towns with a large population, and in the cities, the percentages are more suggestive of actual rather than accidental conditions, and should be taken into serious account by health officers when studying the sanitary needs and requirements of their respective localities. There are many suggestions as well as some important facts to be derived from these statistics.

The general prevalence of typhoid fever is not uniform throughout the state. For instance, there is an average greater mortality from this malady in Coös county than in the other counties of the state. Sanitarians, and others who have given the subject careful study, can readily account for variations of this nature.

TABLE No. 2.

Diagram showing the relative mortality from Typhoid Fever to total mortality, by towns, from 1883 to 1893, inclusive; also average for the state.

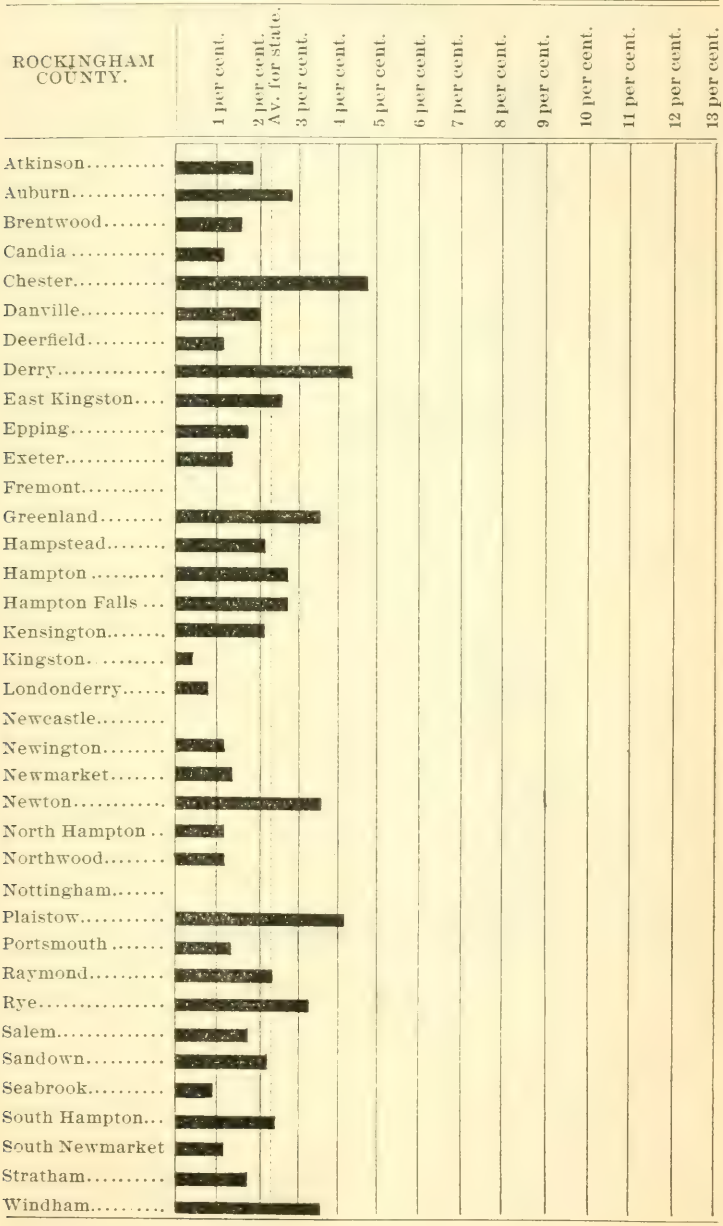
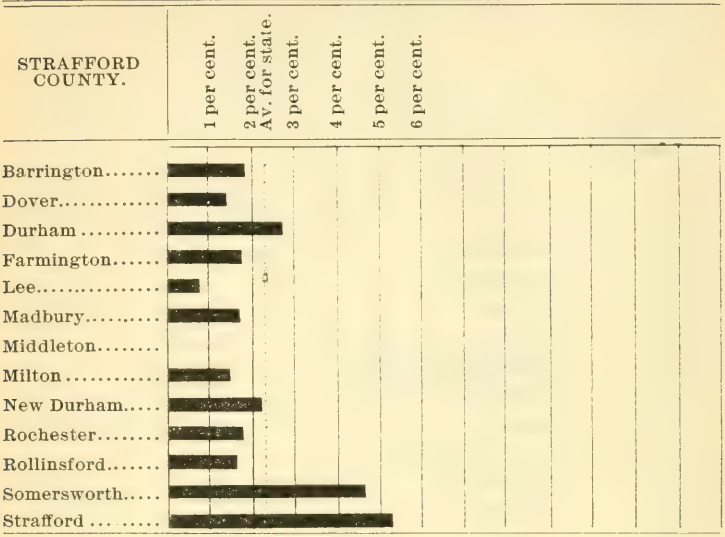


TABLE No. 2.—*Continued.*



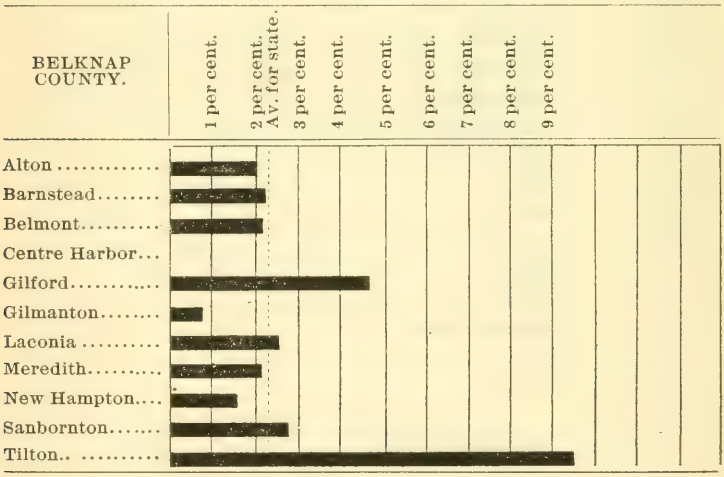


TABLE No. 2.—*Continued.*

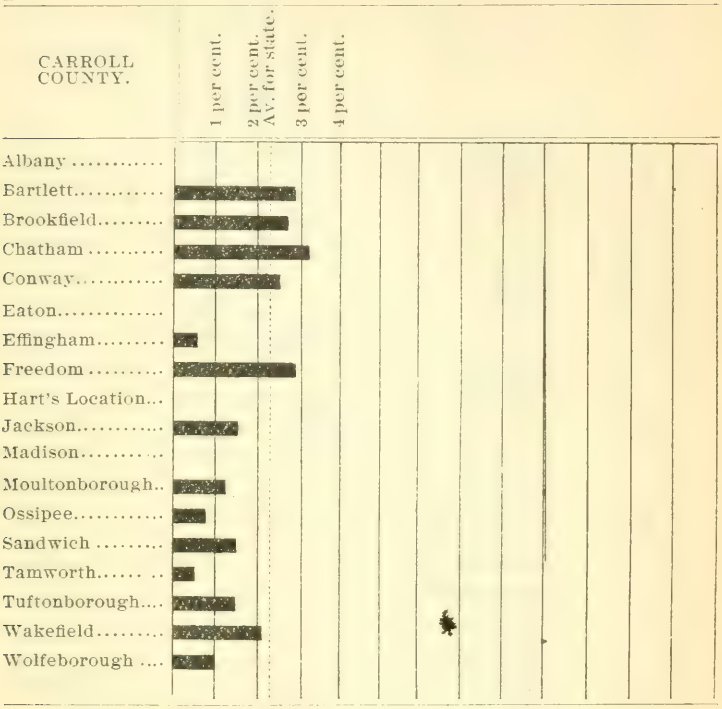


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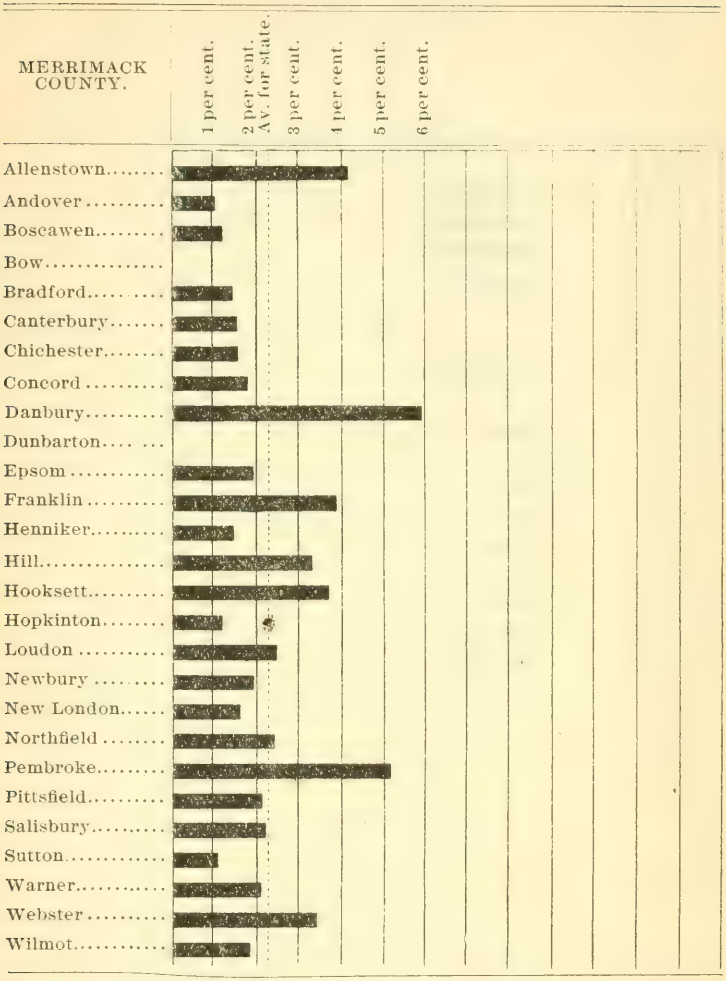


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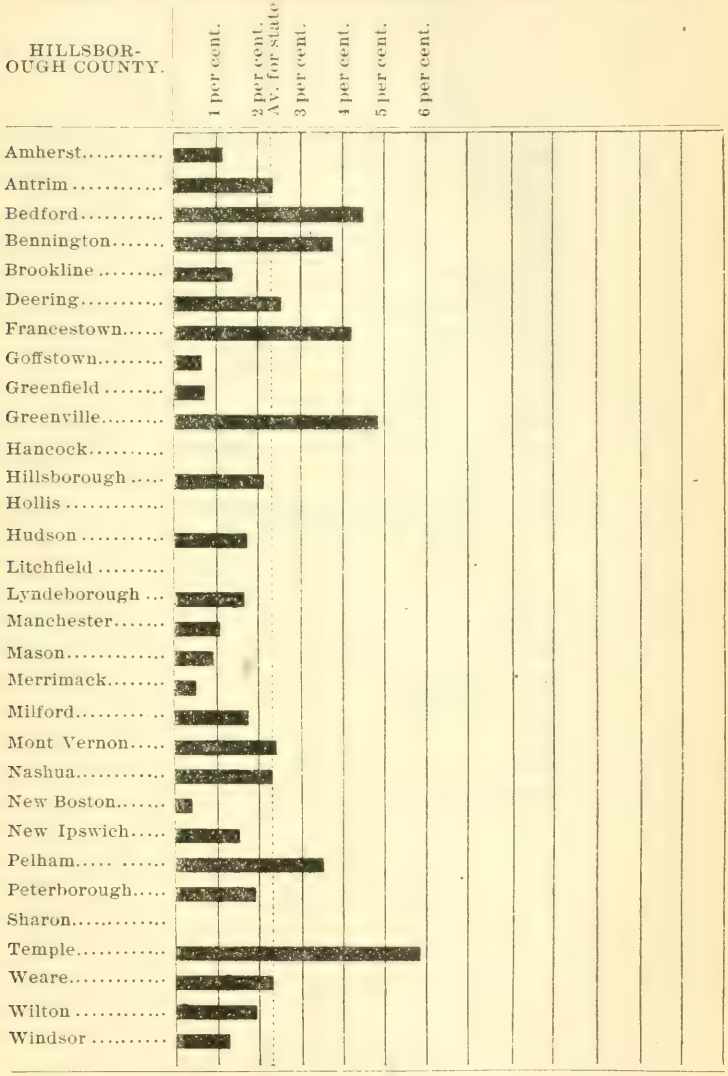


TABLE No. 2.—*Continued.*

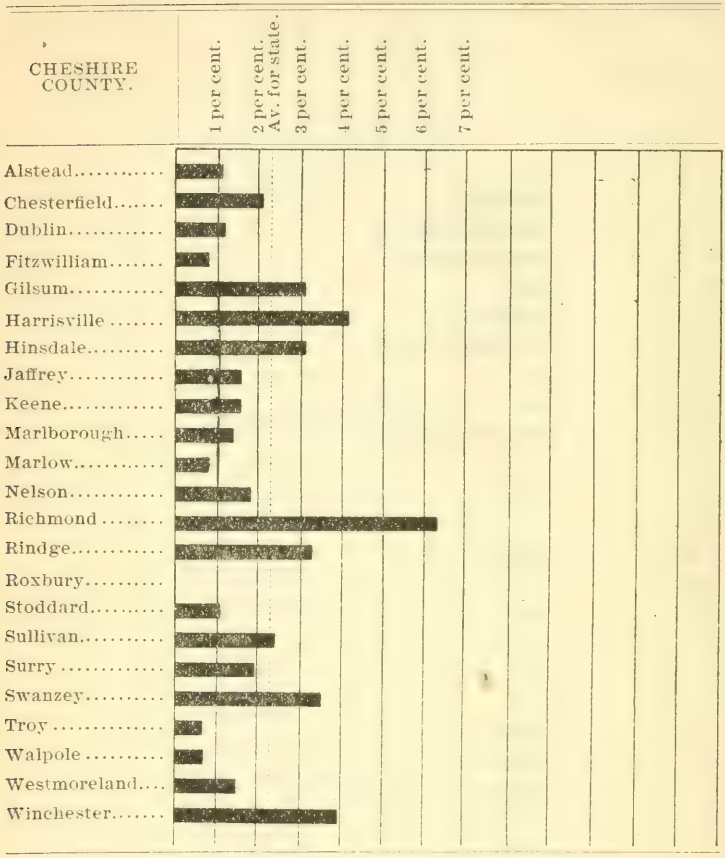


TABLE No. 2.—*Continued.*

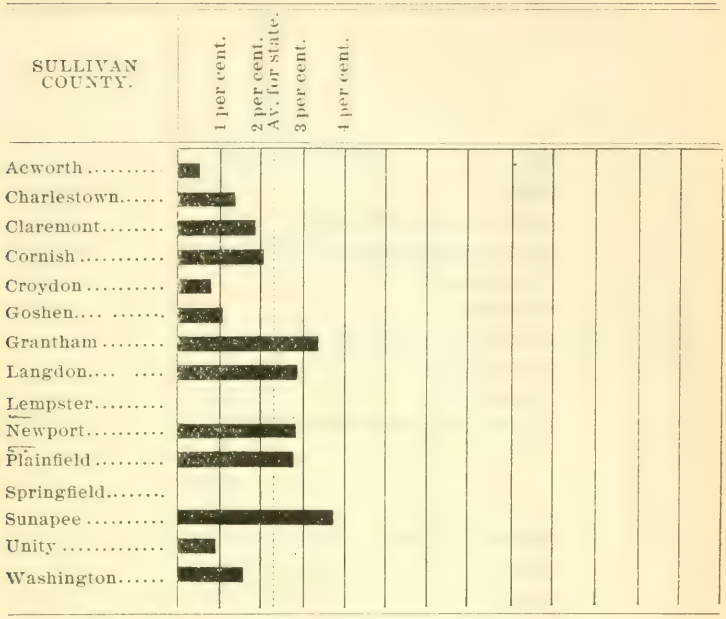


TABLE No. 2.—*Continued.*

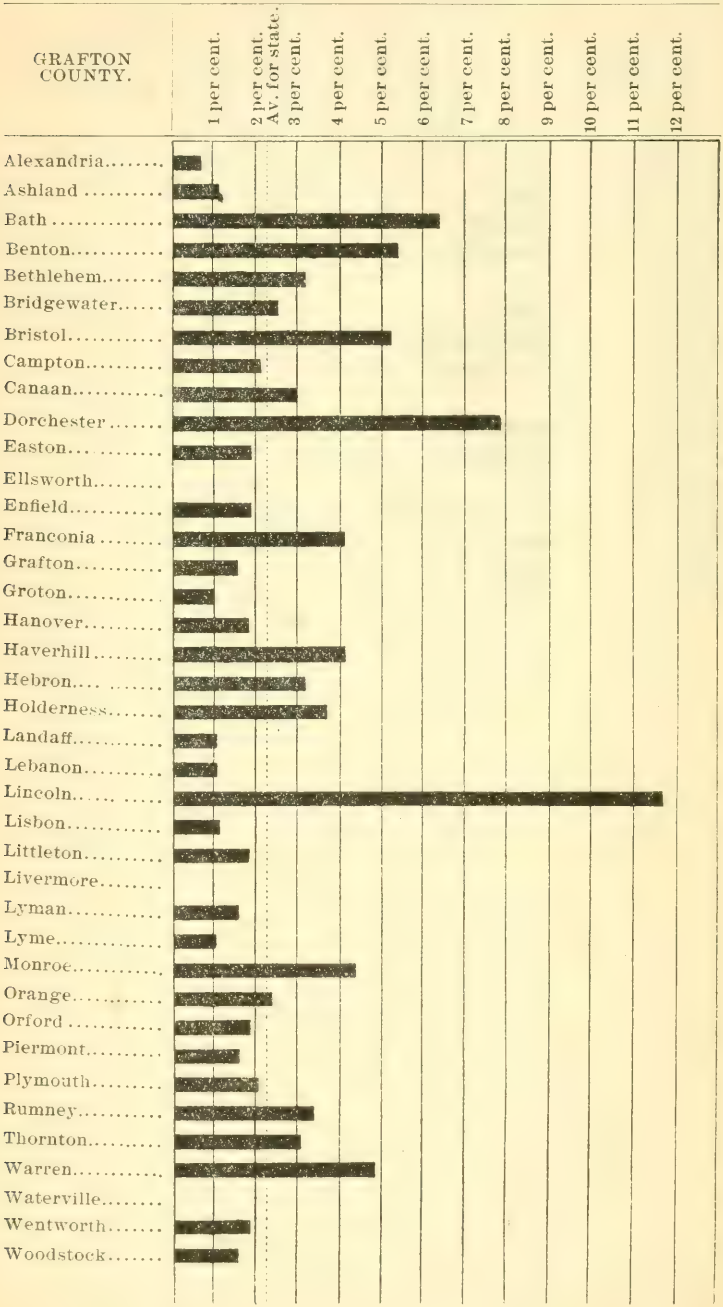


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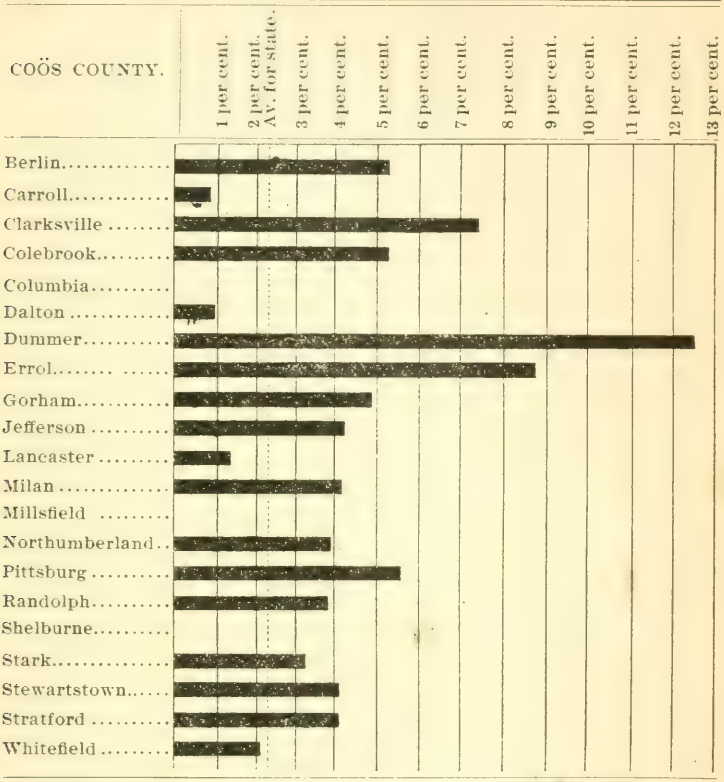


Table No. 3 shows the mortality from typhoid fever, by months and sex, from 1883 to 1893 inclusive.

This table illustrates fully the fact that typhoid fever prevails at all times. Before records of the causes of mortality were kept, it was very generally believed that typhoid fever prevailed during the autumn months only, and that a case in midwinter was exceedingly rare, if, indeed, it ever occurred. The statistics show this view to be wholly erroneous. For the period included in the table, the number of deaths by months, commencing with the period of greatest mortality, was as follows: October, 292; September, 266; November, 212; August, 186; December, 133; January, 107; March, 101; May, 94; July, 93; February, 87; April, 83; and June, 75.

The greatest mortality was in October, and the smallest in June.

TABLE No. 3.

Showing Mortality from Typhoid Fever by Months and Sex from 1883 to 1893, inclusive.

YEARS.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Not stated.	Total.
1883....Males	2	5	1	9	5	2	7	15	11	14	6	3	2	82
Females	5	6	5	4	3	2	8	10	15	14	11	5	2	90
1884....Males	5	3	4	3	4	2	4	9	8	9	9	6	1	67
Females	3	4	3	5	4	2	3	9	16	22	10	4	1	86
1885....Males	2	6	4	2	8	6	1	4	14	6	8	7	.....	68
Females	6	2	9	6	4	8	2	4	14	11	5	4	.....	75
1886....Males	4	4	9	9	3	7	9	13	20	22	10	8	.....	118
Females	6	7	5	2	5	6	3	14	8	23	13	7	.....	99
1887....Males	2	4	3	5	4	1	1	11	16	14	10	5	.....	76
Females	4	2	6	4	4	2	4	9	18	10	9	6	.....	78
1888....Males	8	4	4	3	4	7	6	8	15	12	14	12	.....	97
Females	2	4	5	6	2	6	.....	12	7	9	5	7	1	66
1889....Males	6	4	5	2	3	5	8	7	11	20	10	14	.....	95
Females	5	3	4	6	4	3	7	9	10	15	12	1	.....	79

1890.... Males	12	4	3	4	6	1	3	7	17	12	5	3	.....	77
Females	9	8	8	3	4	1	6	4	10	6	9	5	.....	73
1891.... Males	5	5	5	2	5	3	3	12	10	19	25	10	.....	104
Females	7	2	2	2	3	1	1	8	13	12	11	8	.....	70
1892.... Males	7	2	4	1	2	1	2	4	5	12	7	7	.....	54
Females	2	2	1	1	7	3	5	3	11	7	9	6	.....	57
1893 ... Males	5	5	6	3	3	3	7	6	6	7	6	2	.....	59
Females	.....	1	5	1	7	3	3	8	11	16	8	3	.....	66
Total males	58	46	48	43	47	38	51	96	133	147	110	77	3	897
" females	49	41	53	40	47	37	42	90	133	145	102	56	4	839
Grand total	107	87	101	83	94	75	93	186	266	292	212	133	7	1736

TABLE No. 4.

Showing Mortality from Typhoid Fever from 1883 to 1893, inclusive, by Ages, Sex, etc.

YEARS.	Under 1.	1 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Not stated.	Total.
1883....Males	2	10	1	1	7	27	6	7	7	6	6	3	1	82
Females	.....	9	2	8	16	17	9	5	9	5	6	3	1	90
1884....Males	3	6	2	5	6	18	6	4	6	4	5	2	.....	67
Females	2	5	5	8	15	17	7	8	3	6	3	4	3	86
1885....Males	2	4	1	3	11	18	8	4	4	5	6	1	1	68
Females	1	3	7	8	11	17	6	4	4	5	6	2	1	75
1886....Males	1	5	8	6	18	31	11	13	6	7	8	3	1	118
Females	5	3	7	6	15	20	7	5	10	8	12	1	.....	99
1887....Males	1	5	1	7	12	22	11	5	5	5	1	1	.....	76
Females	2	1	1	9	10	20	9	4	9	6	5	1	1	78
1888....Males	3	7	1	6	16	27	8	7	5	5	8	.....	4	97
Females	1	6	3	5	11	15	4	3	6	4	3	3	2	66
1889....Males	2	4	3	4	12	36	10	8	7	4	2	3	.....	95
Females	3	1	7	10	15	15	3	9	6	2	5	2	1	79

1890.... Males	.....	.....	5	5	11	21	11	6	7	3	4	1	3	77
Females	1	3	5	7	13	12	8	5	7	4	5	2	1	73
1891.... Males	.....	2	5	5	14	35	13	10	6	5	7	2	.....	104
Females	1	1	9	7	14	18	4	5	3	4	2	1	1	70
1892.... Males	.....	4	1	2	10	14	12	1	3	4	1	.....	2	54
Females	1	2	3	8	7	11	6	7	2	3	2	4	1	57
1893.... Males	1	3	1	3	10	14	12	5	4	4	1	.....	1	59
Females	.....	6	2	6	13	17	11	5	2	1	1	2	.....	66
Total Males	13	50	29	47	127	263	108	70	60	52	49	16	13	897
Females	17	40	51	82	140	179	74	60	61	48	50	25	12	839
Grand total	30	90	80	129	267	442	182	130	121	100	99	41	25	1,736
Percentage to the living of the same age groups	.48	.37	.26	.41	.78	.67	.36	.32	.36	.41	.68	.81	.....	.48

Table No. 4 shows the mortality from typhoid fever, from 1883 to 1893 inclusive, by ages, sex, and percentage of deaths by age periods to the same age groups of the living population.

The number of deaths was 1,736, distributed by age groups as follows: Under one, 30; one to five, 90; five to ten, 80; ten to fifteen, 129; fifteen to twenty, 267; twenty to thirty, 442; thirty to forty, 182; forty to fifty, 130; fifty to sixty, 121; sixty to seventy, 100; seventy to eighty, 99; over eighty, 41; and ages not stated, 25.

It will be seen by a glance at the table that the greatest number of deaths are recorded in the age group from twenty to thirty; but these figures, as well as the total number of deaths for the other periods, do not indicate the relative mortality of the disease for such age periods. In other words, it does not follow that because the greatest number of deaths are registered in the age group between twenty and thirty, that period of life is more liable to the disease. In order to ascertain all the facts pertaining to this question, it becomes necessary to study the ages of the population by similar groups. To that end, we have taken the census returns for the years 1880 and 1890, and averaging the figures for these two periods we have the following table, which shows approximately the number of people living in New Hampshire by age groups.

TABLE No. 5.

Population by age groups. Average and percentage, 1880–1890.

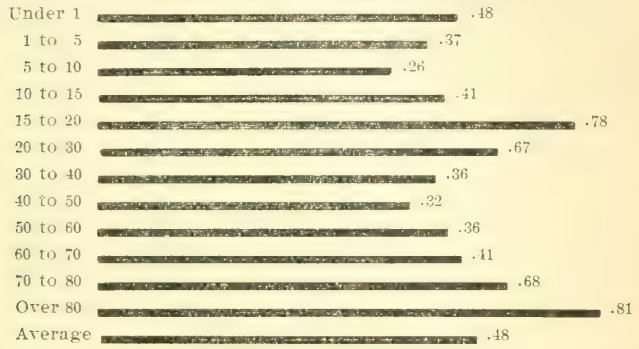
	Average 1880–1890.	Percentage to total population.
Under 1 year	6,244	1.72
1 to 5 years	24,203	6.69
5 to 10 years	30,471	8.42
10 to 15 years	31,494	8.71
15 to 20 years	34,050	9.41
20 to 30 years	65,962	18.23
30 to 40 years	50,038	13.83
40 to 50 years	41,145	11.37
50 to 60 years	33,515	9.26
60 to 70 years	24,432	6.75
70 to 80 years	14,600	4.04
Over 80	5,082	1.45

Total population, census 1880 346,991
" " " 1890 376,530

Table No. 5 shows the percentage of the population by age groups to the total population of the state. If, therefore, we take the total number of deaths by age periods and make a computation with the total number of living of the same ages, we shall as a result obtain the relative mortality from typhoid fever by age periods. This calculation shows the percentages at the bottom of Table No. 4, but is better illustrated in the diagram of Table No. 6.

TABLE No. 6.

Diagram showing percentage of Deaths from Typhoid Fever, from 1883 to 1893 inclusive, to the total living population of the same age period.



A glance at the diagram shows that the greatest relative mortality from typhoid fever is,—

1st. Among persons over eighty years of age.

2d. Between fifteen and twenty.

3d. Between seventy and eighty.

4th. Between twenty and thirty.

5th. Under one year of age.

6th. Between ten and fifteen, and sixty and seventy, the percentages being equal in each of those periods.

7th. Between one and five.

8th. Between thirty and forty and between fifty and sixty, the percentage of these groups being the same.

9th. Between forty and fifty.

10th and last. Between five and ten.

While these percentages show correctly the relative death rate for the ages given, it is quite probable that they do not show the

relative prevalence of the disease by age groups, inasmuch as it is doubtless relatively much more fatal among those groups representing the more advanced ages than in the groups representing the younger classes. In other words, the recuperative powers of the young and middle aged are much greater than those of the older age periods, hence the mortality would be much larger in the latter class, and therefore the diagram would not represent the relative prevalence of the disease, although it does show the relative death rate.

TABLE No. 7.

Mortality from Typhoid Fever from 1883 *to* 1893, *inclusive.*

YEARS.	Deaths.	Percentages of deaths to deaths from all causes.	Deaths-rates per 10,000 living (estimated population).
1883	172	3.19	3.83
1884	137	2.21	3.81
1885	136	2.19	3.75
1886	194	3.01	5.31
1887	134	2.06	3.64
1888	150	2.18	4.04
1889	161	2.40	4.30
1890	143	1.94	3.79
1891	170	2.42	4.48
1892	109	1.36	2.85
1893	121	1.58	3.14
Total	1,627	.....	.....
Average	148	2.23	3.90

Table No. 7 shows the mortality from typhoid fever, from 1883 to 1893 inclusive, together with the percentages of deaths to deaths from all causes, and also the death rate per 10,000 living (estimated population).

There were returned for the eleven years embraced in the table a total of 1,627 deaths from this disease—an average annual rate of 148. Since 1891 the number of deaths from typhoid fever has been somewhat below the average for the entire period. The foregoing tables and diagrams indicate as nearly as possible the situation in New Hampshire as respects typhoid fever. A review of these facts for ten years eliminates largely any erroneous calculations that might be based on the returns of a single year. The facts show that we have in this state an annual crop of typhoid, not excessive from the standpoint of its prevalence in other states and localities, but, nevertheless, much larger than it ought to be. It is a subject which interests every community and every family, inasmuch as the disease is one which may be very largely if not entirely controlled by proper sanitary measures. An outbreak of typhoid fever means that there is something wrong in the sanitary environments of the locality, or at the place where the patient unfortunately contracted the disease.

THE TYPHOID GERM.

It is now known beyond question that typhoid fever is caused by a microscopic germ, and that without this germ there would be no typhoid. In other words, a person cannot contract typhoid fever unless he takes into his system the germ of the disease, which can only come about through the sanitary neglect of somebody.

While there is a difference of opinion as to the morphological history of this germ, there is no controversy over the fact of its existence and its results. Some observers hold to the view that the germ or bacillus known as the Eberth-Gaffky bacillus is the sole cause of typhoid fever, as it is known to be in this disease constantly present in the alimentary canal, in the mesenteric glands, spleen, etc. Indeed, this view is probably held by a great majority of bacteriologists who have given this disease more or less study. On the other hand, equally able observers, like Rodet, G. Roux, Ballet, Arloing, Kellogg, and others, entertain the opinion that the germ known as the *bacillus coli communis*, which is normally

present at all times in the alimentary canal of man, acquires in sewage specific and virulent properties, so that when re-introduced into the human organism it creates typhoid fever.

This theory would certainly explain in a most logical way the appearance of cases of typhoid fever which are said to arise *de novo*. It would illustrate in a most forcible manner the danger that comes from the pollution of water supplies, more especially wells located in close proximity to certain unsanitary conditions.

There are other observers who believe, from laboratory experiments, that typhoid fever may be produced by three or four varieties of germs, which are often if not always found in sewage in certain stages of decomposition.

It will therefore be seen that while there is a difference of opinion as to the character and kind of germs which may produce typhoid fever, there is no controversy over the fact that typhoid fever is a germ disease. To this all agree. Therefore, from the standpoint of the individual, the sanitarian, and the health officer, these points are not essential.

Communities are not especially interested or concerned over the natural history of the germ or germs which cause typhoid fever, their special interest being in the prevention of the disease; but at least a superficial knowledge of the causes of typhoid is necessary to a correct understanding of the methods required to prevent the spread of this disease.

TYPHOID FEVER A PREVENTABLE DISEASE.

The history of typhoid fever, taken in connection with the wonderful control over the disease which has been accomplished by the work done in many towns and cities of this country and in Europe, shows this malady to be one of the diseases most easily prevented and controlled. As an illustration of this point we quote from a recent paper by Prof. Victor C. Vaughan:

I have said that typhoid fever is a preventable disease, and that the large number of deaths from the disease is unnecessary. This is true not only theoretically, but practical demonstrations are not wanting. Prior to 1859 the city of Munich in Bavaria was a veritable hot-bed of typhoid fever. There were no sewers and no public water supply. Most of the houses were furnished

with large brick or wooden flues which were built from the cellar up through the different floors. Into these the excretions from the body were dropped, and accumulated in the cellars. Other waste material was deposited in cesspools, and garbage was thrown into the back yards. The air in the houses was foul and offensive to the smell. The drinking water was taken from shallow wells in the yards, and these often received the ooze from the cesspools and vaults. In 1859 the citizens were compelled to cement tightly the bottoms and sides of these receptacles of filth, and later a system of sewerage was introduced, and later still a supply of wholesome water was obtained. Notwithstanding the fact that portions of the city still remained unsewered at the time of the last report, the results have been most gratifying as is shown by the following table given by Bollinger :

Typhoid deaths in the civil population of Munich per nine thousand inhabitants :

1852–'59	24.2
1860–'67	15.6
1868–'75	12.7
1876	6.8
1877–'79	7.8
1880	6.4
1881	1.4
1882	1.9
1883	1.9
1884	1.4

This shows what has been done in an old and crowded city, and Vienna has practically repeated the demonstrations made by Munich.

The number of deaths from typhoid fever in the United States is about eight per ten thousand. The reduction of this mortality to the same extent that has been actually accomplished in Munich would save in round numbers not less than forty thousand lives each year.

For several years this board took especial pains to investigate as far as possible the causes of typhoid fever in this state, and the result showed that contaminated water was by far the greatest source of infection. In many cases typhoid fever was reported in isolated localities with no history which showed the connection of the case with a prior case, and where the water supply was badly

polluted by the drainage of the premises. Indeed, so many cases of this kind have been noted that it is difficult for the observer to believe that every case of this kind had for its origin a prior case. On the other hand, there is plenty of evidence tending to show that certain unsanitary conditions are responsible for the outbreak of the disease. All authorities agree that drinking infected water of wells has long been known to be a prolific cause of typhoid fever. The evidence is unquestionable that this disease is more extensively produced through contaminated drinking water than from any other cause.

There are numerous instances on record of wholesale infection of communities through the contamination of the general water supply. Many of these instances are now historical. One of the most recent of the kind is the epidemic which occurred early in the present year at Windsor, Vt. In discussing this outbreak, Dr. J. D. Brewster of that place says:

The first case was reported March 15th, and was in a family who resided at the extreme southern limit of the village, and at the time there could not be found any apparent cause for the disease.

No further case appeared until March 24th and 25th, at which time a large number of people were taken with high fever, which soon showed itself to be unmistakably typhoid fever. These cases were among all classes of people, the rich and poor alike, but all within the village limits.

Observation soon showed the disease was confined entirely to families using the village water supply, those having wells being entirely exempt, except in cases of children who drank the water at school. This fact led immediately to the examination of the water system. Windsor was supplied by a series of springs situated about two miles or more from the centre of the village; these springs formed a small brook, which ran along a valley for about a mile, passing six farms and dwelling houses and then emptying into a reservoir, from which iron pipes conveyed the water into the houses. Now, about forty rods above the rise of the brook, a farm house is situated where it was ascertained a person had suffered the previous January from a feverish condition for about four weeks; it was supposed to be a non-infectious form of fever, and was not reported to the local board of health, and consequently no care was taken of the discharges of the patient and

they were thrown into the vault ; to make matters worse, the sink drain was frozen at the time, so all wash-water was thrown out upon the snow. During the very warm weather which we had the first week in March the snow melted, and all this accumulation easily found its way into the brook and thence into the reservoir and our homes. This explanation was unanimously endorsed by the state board, who made an official visit to the place soon after the outbreak. The local board at once issued orders to have all water for cooking or drinking puposes boiled. At the same time the town provided a water cart to deliver water at the houses from an adjoining spring.

From March 24 to 30 about eighty cases were reported ; from this date to April 27 the cases became less frequent, this time being probably the limit of the primary cases, the later ones being secondary, and mostly occurred in families already suffering from the disease. Up to July 28 there were 130 cases, these occurring in 68 families ; the largest number afflicted in one family being five, the majority only one. The ages ranged from 10 months to 92 years, but the majority were under 20 years of age, and a large per cent. were children. These withstood the disease to a remarkable degree, even with a protracted evening temperature of 104. The population of Windsor is 1,300, so about 10 per cent. of the inhabitants were affected. We were fortunate in having only 17 deaths, or 13 per cent.

Dr. F. A. Hodgdon of Peterborough, in a recent communication to this board, says :

Drinking water so often polluted becomes one of the most common sources of typhoid fever. The following cut illustrates the location of a tenement house and its relation to a polluted well, in which house occurred six cases of typhoid fever in one family following one another in rapid succession, so that there were five in bed at one time. In an epidemic of 22 cases in Peterborough in September and October of 1894, these six cases were among the first to appear, and upon the same street six others came down soon after, showing to me that the poison from this well played no small part in the causative action of these cases.

I may say that this well was situated 18 feet from a privy, which had not been cleaned out for at least a year, so far as any one could vouch for certain. For 40 years the sink spout had come outside the house and been pouring its poison within ten

feet of the well. With the privy vault upon one side and the sink upon the other, this well had been fed for the last half century with such pollutions as would develop microbes in such myriad numbers that they might storm a city. It teaches me if more attention could be paid to the privy vaults and cess-pools, and drainage generally, that a large number of these cases of typhoid fever could be avoided.

All these cases recovered, as did also the 22 above referred to. All were mild, yet typical. I called Dr. C. J. Allen in to see these cases with me, and he compared the diagnoses and concurred in the causes of them after carefully looking about the premises.

There are, however, many other sources of danger. Vaughan says:

I am rather insistent upon the possibility of the spread of the typhoid germ through the air, because I am convinced that the possibility of such means of dissemination is sometimes overlooked. There is another reason for the special mention of this point, and this is the custom prevalent in many places of drying the fæcal matter within the building by means of warm foul air as it is drawn into the exit flue. This method of disposing of the excretions of the human body has been adopted in many schoolhouses, and I believe that it is by no means devoid of danger. It is said by those who favor this method that the air of the rooms cannot become contaminated because it is constantly being drawn outward and there are never inward currents. In reply to this, I would say that there is no system of ventilation so perfect that counter currents are never formed by the opening of windows and doors. Fæcal matter should never be stored in inhabited buildings. It should be removed as speedily as possible. Currents of air will not take up germs from moist surfaces, but so soon as these masses of waste matter become dry there is danger of breathing the air which comes over or through them.

Prof. W. T. Sedgwick of Boston, in an interesting address delivered at the 21st annual meeting of the American Public Health Association, speaks as follows in regard to the methods of infection which came under his observation in connection with an outbreak of typhoid fever in Massachusetts:

There is still a third class of epidemics investigated by the State Board of Health of Massachusetts to which I wish to invite special attention,—namely, those epidemics due to what I may call secondary infection. One of these is shown upon a diagram which I show you. You will see the location of the milk epidemic to which I have referred, which infected the best part of the city of Springfield. Please bear in mind that the typhoid fever was not in the filthy part of the city, but in the magnificent portion of the town, where the houses have fine lots, where every prospect pleases, and where only milk is infected. It is now of secondary infection epidemics of which I wish to speak.

I have here an example in the town of Palmer. There is a district called Duckville, which is a portion of the village of Bondsville. There appeared here, after the Springfield milk epidemic, an interesting outbreak of typoid fever cases in the neighborhood of a well, which was located only thirty feet from the worst privies I ever saw. I saw houses grouped around the well, and the well was apparently in a terrible condition. On taking samples from it and examining them chemically and bacteriologically, we found absolutely no typhoid-fever bacilli, and hardly any germs of any kind. The water was seemingly remarkably well purified. From a chemical point of view, also, it was unobjectionable, because the well was a driven one, and the privies near by did not contaminate it. We found on tabulating the cases and making data that there was a curious sequence in the cases. They did not come down as the cases in Springfield, with one blow, as if some poison was widely distributed to many houses at once; nor did they come down as at Lowell. They came down one on the first, two on the second, one on the ninth, one on the twelfth, two on the fourteenth, and so on for a month. We found, in fact, a succession of cases. Beginning at number one, I traced the thing along until it spread to other portions of the village. In trying to find out the cause of this, I went into one of the houses of low grade in which the inmates were filthy in their habits. On one occasion I had a revelation: I found four people sick with typhoid fever in one room, and two in bed in an adjoining room. Those in the room were gathered around a table on which there was some food. Some in the prodromal stages were still sitting up. They were children, and would get off from the chair on which they were sitting, go out to the privy, and then come back, and without washing their fingers would

stagger up to the table and finger a big piece of cake which lay on it. They would then nibble a little bit, leave the rest, and sluggishly walk back to their seats. Another child would get off its chair, or a child would come in from the outside, would go up to the same table, break off a piece of cake and eat it. There was no question about how the infection was spreading in a case like that. From case A something was left upon the cake, and from the cake it soon found an entrance into the alimentary canal of the next child. The children went from house to house, —they live pretty much together,—the food stands on the table from day to day, and they lived that kind of a life in which the children eat food in common, and the food which went into the mouths of A, B, and C was fingered by D, E, and F, and it only required that D or E should have a case of typhoid fever to infect the others, one after another. We found, moreover, that the first case was unquestionably imported from a neighboring town, having been distributed in the way I have described. A large boarding-house, the occupants of which were using the well water all along, did not contain a single case of the disease; so I was forced to the conclusion that the well had nothing to do with it.

Typhoid fever is sometimes spread through infected milk. Such a result could not occur except through sanitary carelessness at the dairy. During the present year such an instance was reported by the secretary of the board of health of Titusville, Pa., as follows:

August 26, the first case of typhoid fever appeared in the city, and two days later two more cases. At this time I learned that a case of typhoid fever existed on a dairy farm about a mile north of the city, and that these parties were taking milk from this dairy. I immediately stopped them from bringing any more milk into the city. Within the next two weeks we had thirty-eight cases in town, and every one of them had been using milk freely from this farm previously to the time I stopped it from being brought into the town. The following week we had six more cases reported, two of which were imported cases, being men who had been working away from home and had come home sick with it. The other four had been users of this milk. Since then we have had six more cases reported, making fifty cases up to date. Of these six cases two were imported, and the other four have occurred in families where the disease had already

been existing from the use of this milk, and where the sanitary conditions were not what they ought to be, and the families had been very careless. Of this number, four have died. The first case on the dairy farm came there from Buffalo, N. Y. Shortly after she arrived home, her sister came down with the disease, and a little later her brother. The mother was taking care of her daughter and the milk at the same time. She was very uncleanly in her personal habits, and no precautions were taken at that time with the stools.

The sanitary conditions of the premises at that time were good. Three cases existed on this farm, independent of those in the city. Two parties visiting here at that time who used some of that milk went home and came down with the disease, and a number of others in the town who had used the milk showed symptoms of it for a few days.

COUNTY INSTITUTIONS.

THE STATE OF NEW HAMPSHIRE.

STATE BOARD OF HEALTH.

ROCKINGHAM COUNTY.

CONCORD, June 3, 1894.

Board of County Commissioners:

GENTLEMEN:—Certain facts having been presented to the State Board of Health relative to the prevalence of diarrhœal and typhoidal conditions among the inmates of the Rockingham county almshouse, and the conclusion having been arrived at that the said conditions are dependent upon a contaminated water-supply, it becomes our duty to render a report to your board, with recommendations.

Recognizing yourselves that something should be done to remove the cause of so much illness, your board invited the secretary of the State Board of Health to inspect the premises, which he did on June 7. There were present at the time of the inspection the full board of county commissioners, the superintendent of the almshouse, Drs. Henry L. Sweeny and Abram W. Mitchell, ex-physician and physician, respectively, to the institution, an engineer, and others. A thorough examination of the premises was made and a general consultation held.

By request the physicians named have made brief statements, copies of which are herewith given:

To I. A. Watson, M. D., Secretary State Board of Health:

Agreeably to your request I submit the following report in regard to the sanitary condition at the Rockingham County Farm on May 10, 1893:

Entered upon my duties as physician to the inmates of the Rockingham county almshouse, asylum, and house of correction. In July of that year there was a severe outbreak of diarrhœa, which spread rapidly among the inmates, proving rather intractable in some cases, but resulting fatally in only two, both old and much debilitated persons. At once the physicians began their search for the cause of the outbreak. The plumbing, closets, and drains about the buildings seemed to be in a satisfactory condition, and chloride of lime was being freely used in the closets and drains, and the whole system thoroughly flushed twice daily. At the outlet of the sewer a defect was found, but was at once remedied when the attention of the superintendent was called to it. By the order of the physician the well was pumped out as thoroughly as possible, soups were dropped from the list, and the diet of the inmates generally revised and restricted. They were also warned and forbidden from using the water from the pond for drinking.

Despite our efforts the diarrhœa continued throughout the summer months, and only entirely disappeared with the advent of cold weather. In the fall we had several cases which developed typhoidal symptoms, and two at least of typhoid fever of a mild type. This year we are beginning to experience the same trouble a month earlier than last, several cases of diarrhœa having appeared within the last week.

The water supply of the place has been examined, samples analyzed, and the results, as well known to you, show pollution to such an extent as to necessitate absolutely a new source of supply, as the water from the purest source can only be used with great risk and danger. The only available source, it seems to me, which gives promise of a permanent supply free from danger, is by sinking an artesian well deep enough to exclude entirely the surface water, and this measure I am in favor of, have recommended, and do recommend to the commissioners of Rockingham county.

(Signed) HENRY L. SWEENY, M. D.

Kingston, June 7, 1894.

Epping, N. H., June, 1894.

To Dr. Irving A. Watson, Secretary State Board of Health, Concord, N. H.:

Dear Sir:—In the interest and behalf of the numerous unfortunate people confined or supported at the county institution at Brentwood, I would respectfully call your attention to the quality of the drinking water supplied to them. The analysis of all four possible sources—the pond, the new filter tank, the well, and the spring half a mile distant, are before you, and I feel sure that you will condemn these sources, as have we long ago, who have had to care for the very large number of patients made ill by the use of these waters. During the first three of the six years that I have been professionally connected with the farm, I can distinctly remember and state that no case of typhoid fever or diarrhœa resembling it originated on the place. In the fourth year the cases of diarrhœa had, in a few cases, a tendency toward typhoid that was suggestive. During the fifth year the tendency was more decided and manifest, while in the sixth or last season the epidemic of bowel troubles was terrible. Superintendent Dimond very willingly and kindly changed the regular diet, excluding soups, etc., and doing everything the physicians suggested. The commissioners furnished all the drugs asked for, and we used them to the best of our ability; but notwithstanding all this, the diarrhœa continued, grew worse, and several cases of unmistakable typhoid fever presented.

In view of the unfavorable analysis, our former experience, and the fact that several cases of diarrhœa have already made their appearance, dreading for the helpless and dependent inmates, for ourselves, and for the conscience and good reputation of the county the dangers impending, I earnestly entreat you to give this matter early attention and to aid us in furnishing a pure water supply.

(Signed) ABRAM W. MITCHELL.

It appears that for several years past the chief source of water supply has been from a brook which runs through the farm and within a few rods of the buildings. In order to create a reservoir of sufficient capacity, a dam was constructed which causes the water to flow quite an area of marshy or muddy land. Some distance above the dam upon this brook are some two or three brick-yards

which pollute it more or less and at one point a privy spans the brook, we are creditably informed. From this brook water is pumped into a tank of 10,000 gallons capacity, and thence distributed by pipes throughout the institution.

Suspecting the water from the brook to be unfit for domestic use, Superintendent M. J. Dimond sent a sample of it to Prof. E. R. Angell for analysis, and received the following report:

SANITARY ANALYSIS OF WATER, ROCKINGHAM COUNTY FARM.

Pond water.

Odor	Little
Color	Marked yellowish tint
Evaporation	Foamy
Residue	Yellowish circles and patches
Ignition of residue	It blackens strongly
Solids, grains per gallon	4.8
Loss on ignition, grains per gallon	2.2
Hardness, degrees	1.5
Alkalinity, degrees	2.0
Chlorine, grain per gallon	0.3
Free ammonia, part per million	0.252
Albuminoid ammonia	0.248
Nitric acid	None
Nitrous acid	None
Lead	None
Iron	Strong trace
Sediment	Too much

Microscopic examination; decomposing vegetable matter, infusoria, bacteria, diatoms.

Oxygen for oxidation, grain per gallon 0.497

This water is not suitable for drinking purposes. It contains too much vegetable matter in solution. (Signed)

EDMUND R. ANGELL.

Derry, N. H., May 23, 1894.

Recognizing the necessity for a better water supply, the commissioners caused a cistern to be constructed within a few feet of the pond, expecting that the water would filter through the intervening soil and fill the cistern with good water. Instead of this result the soil water from the higher ground, including the site of the almshouse and other buildings, leached into the cistern, filling it a foot or more higher than the level of the pond. Thus the attempt to obtain pure water by means of filtration from the pond into a cistern resulted in procuring a supply of ground water of doubtful quality. An analysis of this water was made May 23, with the following results:

SANITARY ANALYSIS OF WATER, ROCKINGHAM COUNTY FARM.

Cistern water.

Odor	Very little
Color	Slight tint
Evaporation	Quiet
Residue	Uniform and white
Ignition of residue	*It smokes and blackens some*
Solids, grains per gallon	*9.0*
Loss on ignition, grains per gallon	1.7
Hardness, degrees	3.0
Alkalinity, degrees	4.0
Chlorine, grains per gallon	*0.8*
Free ammonia, part per million	*0.089*
Albuminoid ammonia, part per million	*0.09*
Nitric acid	*Some*
Nitrous acid	*Little*
Lead	None
Iron	Trace
Sediment	*Too much*

Microscopic examination: *Sand, crystals of carbonate of lime, particles of straw, bacteria.*

Oxygen for oxidation, grain per gallon.....0.097

This water is questionable. I would not drink it myself. I italicize the objectionable results in the analysis. It is to be understood that the substances so marked are in excess, or are objectionable from their presence.

(Signed)

EDMUND R. ANGELL.

Derry, N. H., May 23, 1894.

Recourse has been had, more or less, to a well upon the premises for drinking water, situated some seventy-five or a hundred feet from the site of some old surface privies, which for some years polluted the soil to an excessive degree. Fearing that the water might also be contaminated, Mr. Dimond caused an analysis to be made of a sample taken from the well in May, as follows:

SANITARY ANALYSIS OF WATER, ROCKINGHAM COUNTY FARM.

Well water, sample No. 1.

Odor	Slight
Color	Slightly turbid
Evaporation	Nearly quiet
Residue	Quite uniform and white
Ignition of residue	It darkens a little
Solids, grains per gallon	9.6
Loss on ignition	4.3

Hardness, degrees	2.0
Alkalinity, degrees	1.8
Chlorine, grain per gallon	1.2
Free ammonia, part per million	0.087
Albuminoid ammonia, part per million	0.124
Nitric acid	Considerable
Nitrous acid	Little
Lead	None
Iron	Trace
Sediment	Some
Microscopic examination: Bacteria, infusoria.	
Oxygen for oxidation	None

The unfavorable features are: Too much loss on ignition; too much ammonia, both free and albuminoid; excess of chlorine. The natural amount of chlorine should not exceed ½ grain per gallon; excess of nitric acid, and presence of nitrous acid. These results show that this water contains drainage of some kind. It is very suspicious water.

(Signed)

EDMUND R. ANGELL.

Derry, N. H., May 28, 1894.

There is upon the farm, in the lowest part of a large field 2,300 feet distant, a spring from which it has been proposed to take the water for domestic use. A topographical examination of the spring indicates that a large proportion of its water is surface drainage only, as the natural drainage of the land is toward this spring, while one or two lines of subsoil drainage tile have been laid in a manner tending to take the drainage toward the spring. An analysis of the water in this spring recently made by Prof. Angell is herewith given.

SANITARY ANALYSIS OF WATER, ROCKINGHAM COUNTY FARM.

Sample No. 2.

Odor	Slight
Color	Yellowish and turbid
Evaporation	Foamy
Residue	In circles and yellowish
Ignition of residue	It blackens strongly
Solids, grains per gallon	9.3
Loss on ignition, grains per gallon	6.2
Hardness, degrees	3.0
Alkalinity, degrees	2.5
Chlorine, grain per gallon	0.8
Free ammonia, part per million	0.09
Albuminoid ammonia, part per million	0.32

Nitric acid.....None
Nitrous acid.....Some
Lead.....None
Iron.....Trace
Sediment.....Some
Microscopic examination: Bacteria, vegetable cells and tissue.
Oxygen for oxidation, grain per gallon.....0.97
This water is not suitable for drinking purposes.

(Signed) EDMUND R. ANGELL.

Derry, N. H., May 23, 1894.

Briefly the situation regarding the water supply of your county almshouse, asylum, etc., seems to be as follows:

1st. The pond made by a dam in the brook from which the greater part of the supply for the institution has been taken for the past few years, is of too poor a quality and of too suspicious a character to be used with safety. This supply receives the drainage of several brick yards and is liable with every shower to serious contamination.

2d. The cistern water is from the soil drainage of quite an area, probably embracing the entire site of the almshouse, asylum, and adjacent grounds, and therefore its use should be discontinued.

3d. The well, as has already been shown, is contaminated to an extent that renders the water unfit for domestic use. This contamination is doubtless due to long continued soil pollution in years past, and it is not probable that the soil will be freed from dangerous organic impurities for many years to come. Therefore the well should be permanently closed.

The question which presents itself to your board is, How shall an adequate water supply be obtained for this institution? It has been conclusively shown that neither of the sources from which water has been or is now being taken should be continued, and it therefore becomes the duty of your board to furnish a new supply at the earliest possible moment.

The diarrhœal and typhoidal conditions which have prevailed at the institution, baffling the skill of your physicians, together with the analyses above given, would seem to establish beyond reasonable doubt that the cause is to be found in the water used at the almshouse. I think these points have been so definitely settled that they need no further discussion. The problem of obtaining a new supply is the vital question with which you have to deal.

The only available water in sight, within a reasonable distance, is the spring above mentioned, and the water from this source has been shown by analysis to be unfit for domestic purposes, in addition to the fact that it does not, in all probability, contain a sufficient supply for the institution.

There appears, therefore, to be but one readily available source for a water supply of a satisfactory quality and sufficient quantity, to wit: an artesian well. Judging from the geological formation of the locality, with strata of clay and rock formation and intervening beds of quicksand, we should expect to obtain, within a reasonable depth, by means of an artesian well, a water supply that would be adequate in all respects for the institution.

We therefore recommend that you take immediate measures to carry out the suggestions embodied in this report.

Respectfully submitted,

IRVING A. WATSON,
Secretary.

Soon after the receipt of the foregoing communication, the county commissioners contracted for an artesian well in accordance with the recommendation submitted to them. A well was put down to the depth of 241 feet, and lined with a six-inch pipe. A great abundance of water was found. The pump, operated by steam, was put down sixty feet below the surface, and the whole enclosed with a small brick building. The capacity of the well is fifty gallons per minute, and the quality of the water all that could be desired, so that at the present time the Rockingham County Almshouse is supplied with an abundance of good water, the desideratum long desired.

The total cost of the well, including pump and house, was about $2,500.

ROCKINGHAM COUNTY ALMSHOUSE AND ASYLUM.

This institution remains in practically the same condition as heretofore (see former reports of this board). Some minor improvements, however, have been made. The buildings are in a cleanly condition, and show excellent administrative ability upon the part of the superintendent and matron.

It is to be regretted that we cannot speak with commendation of the almshouse proper. We have stated it to be unfit for the

purpose to which it is put in our former reports, and in this respect the conditions remain the same. It is a cheaply made wooden building, and at all times is a veritable fire-trap, notwithstanding within the last two or three years additional water facilities have been supplied to the institution. They are, however, inadequate to cope with a fire once well started. We do not feel like recommending to the county anything short of a new building in the place of the main almshouse, to be constructed of brick, and upon modern plans and principles.

The institution appears to be well managed in every particular.

There were present at the time of the inspection 230 inmates.

STRAFFORD COUNTY ALMSHOUSE.

During the year a number of improvements have been made in this institution. The old system of sewerage has been entirely abandoned; the house has been thoroughly re-plumbed and a sewer constructed from the buildings to the river. This change has greatly improved the sanitary condition of the institution. The work seems to be well done. The fixtures are all arranged, and seem to be ample for the needs of the institution. The closets, which formerly were adjacent to the dining room, have been removed to another part of the building, and thoroughly refitted. Two new bath tubs have been put in; several new sinks have also been introduced and are well supplied with hot and cold water. The entire system of steam heating has been overhauled and reconstructed so it is now satisfactory, and furnishes an ample amount of heat to all the rooms. A new boiler house has been erected some fifty feet from the two wings of the almshouse, and a steam main is carried to each wing; new radiators have been put in throughout, and the test of one winter shows that the institution can be thoroughly heated with the present system, with from one to four pounds of steam. The reconstruction of the heating system has made a saving of nearly $600 a year in fuel. Steam cooking has been introduced into the kitchen, and is giving great satisfaction.

The institution presents a cleanly appearance throughout. The walls and ceilings have been whitewashed or painted, so that the rooms present a clean and tidy appearance.

The water supply seems to be ample. There is a storage of

120,000 gallons in the tanks, and four streams can be played upon the buildings at once, and the highest portions of all the buildings can be readily reached by the use of the steam pump, which is ready for use night and day. The steam for cooking is taken from the power boiler, hence the latter is always under pressure and ready for immediate use. The steam plant is supplied with three boilers, so in case of accident to one the others can be brought into immediate requisition.

The cost of the improvements which have been made in this institution within the past year aggregates some $15,000.

There are one hundred inmates.

The insane asylum, which was burned a few years ago, has not been rebuilt. The county maintains some fifteen or twenty insane patients at the New Hampshire Asylum for the Insane.

BELKNAP COUNTY ALMSHOUSE.

This institution is located in the town of Laconia, between one and two miles from the station. It is on a healthful site, at a good elevation a short distance from the bay between Laconia and Lakeport.

The buildings consist of the almshouse proper, the county jail, and an adjacent building for the insane, with stables and outhouses.

Within a few years many improvements have been made at this institution, such, for instance, as remodeling the heating apparatus, the introduction of the city water supply, better protection against fire, and a better general condition of the buildings themselves.

The entire institution contained at the time of the last inspection sixty inmates, seven of whom were prisoners in the jail, and seven insane persons confined to the out-building used for this class of patients.

The main almshouse is in an excellent condition. The woodwork is painted annually, and the ceilings frequently whitewashed, so that the general appearance of the rooms is excellent. The heating and water supply are ample. The windmill which was formerly the only means of obtaining water for the institution, is still used in order to economize in the cost of the use of water from the city supply, the latter being used only when necessary.

The buildings seem to be fairly well protected from fire, so far as means of extinguishing the conflagrations are concerned. There is a stand-pipe to which 150 feet of hose is attached, upon each floor of the almshouse. There is a street hydrant about 100 feet distant from the main house, and a supply of 500 feet of fire-hose. We would suggest that this hose be permanently attached to the hydrant, and that a house be built over the same. The fire apparatus was called into use last fall when the roof was discovered to be on fire and the flames extinguished without difficulty.

There are seven watchman's boxes in different parts of the institution, which the watchman has to visit once an hour, between 9 o'clock in the evening and 5 o'clock in the morning.

The building used for the insane is not a suitable one. For these patients ten rooms, including a bathroom, were fitted up in the attic of a building occupied for the laundry and the woodshed. There are many objections to this plan, and we would suggest that the county take into consideration at the earliest practicable moment the need of erecting a new building for this class of patients.

The jail, so far as its sanitary condition is concerned, is in an excellent condition. It is kept thoroughly whitewashed and painted by the prisoners. It would seem, however, that the building is not a satisfactory one, judging from the report of the sheriff to the county commissioners. On this point he says:

"Our jail is not what it should be and its condition ought to be remedied at once.

"It is not to the credit of the county that the walls of this institution, made with an object to safely keep those committed to it, offer no more resistance to the efforts to escape, should those confined there be inclined to make it, than the walls of an ordinary dwelling house, those of wooden construction not excepted. Some of the cells are useless on this account.

"This matter ought to be fully understood, a thorough investigation made and the defects corrected.

"We also need bedsteads of different construction, that cannot be taken apart and used either as a weapon for assault or a tool for escape."

CARROLL COUNTY ALMSHOUSE.

Since our last report upon this institution some four or five thousand dollars have been expended upon it in improvements. Steam heating has been introduced, thus doing away with the numerous stoves which were a constant source of danger to the entire buildings. A forty-horse power boiler has been set in the basement, and steam from it is conducted to thirty-six radiators, conveniently and appropriately distributed, so as to heat all the rooms, including the attics. The radiators are of attractive pattern, and furnish an ample amount of heat, as the experience of the past winter has proven. The next, but no less needed, improvement consists in an excellent water supply, put in last year, and which furnishes water of splendid quality, and apparently in abundance for domestic uses and for fire purposes. Good springs were found about three fourths of a mile distant, a reservoir made, and an iron pipe, commencing with eight inches in diameter and ending with four, was laid to the buildings. Two out-door hydrants were put in, one on each side of the almshouse. To one of them two lines of fire hose are constantly attached ready for instant use. A four-inch standpipe goes up through the middle of the main house, having two-inch hose attached on every floor, including basement and attic, and sufficient in length to reach every room in the entire institution. The pressure is sufficient to throw water with great force over the main house, outbuildings, and barns, the reservoir being at an elevation of 112 feet. The house service is connected directly with the main pipe, thus doing away with the tank in the attic. Two ladders, reaching to the roof of the main building, are always in position and ready for use in case of fire. If the reservoir is of sufficient capacity it would seem that the protection now afforded for extinguishing a fire is all that could be desired. It is especially worthy of note that the standpipe and inside hose are large enough to be of practical use, a point overlooked in some other institutions of this kind.

The general condition of this almshouse is most excellent. All the rooms are whitewashed once and sometimes twice a year. In the matter of order, neatness, and cleanliness in all its departments this almshouse is not excelled by any in the state, for which especial commendation is due the matron, Mrs. Manson. The institution has sixty inmates, among which are fifteen insane and six children.

The county jail, connected with the almshouse, remains in the same condition, practically, as when last reported upon. It is entirely unsuitable for its purpose, and the county should take early steps towards the erection of a decent jail.

MERRIMACK COUNTY ALMSHOUSE AND ASYLUM.

This institution is located at North Boscawen, a very short distance from the railroad station. The main house is on an elevation overlooking the Merrimack valley and river, and some fifty or seventy-five feet higher than the asylum barns and other out-buildings, and at a considerable distance from the same. Indeed, this is one of the best located almshouses in the state from a sanitary point of view.

The drainage of all the buildings, even including the overflow from the water troughs at the stables, is conducted by sewers to the river.

The improvements at this institution since the large barn was erected some three years ago, are not extensive, although some of them are important. Among the latter may be mentioned the abandonment of the old water-closets and the substitution of latrines. The latter consists of an iron trough several feet in length, of ample depth, in which there is constantly a supply of fresh water. This water is supplied from a tank which automatically discharges into each latrine about half a barrel of fresh water every ten minutes. These latrines have been in use at this institution about a year, and have fully demonstrated that they are a great improvement over the usual water-closet, especially for institutions like this. There is an entire absence of odor from them, owing to the almost constant flushing, and therefore they have not at any time been a nuisance.

Some improvements in the plumbing have been made, including a few new sinks.

The dispensary has been changed and greatly improved by making a closet with glass panels across one entire side of the office, and in which is kept an ample supply of medicines for the institution. These medicines are all in attractive looking bottles permanently labeled.

In the basement of the south wing of the almshouse, a dining-

room has been prepared for use in winter, or such other times as it may be needed.

From a general standpoint, the institution is in a most excellent condition. Its walls are kept well painted and whitewashed, and the rooms and hallways are clean and tidy.

Constant improvements are always needed in institutions of this character, and this one is no exception. New hard wood floors ought to be laid in the hallways and corridors, bath-rooms, hospital, dining-rooms, and perhaps in some other portions of the main almshouse, to take the place of the defective, shrunken, and worn-out floors now existing.

Another thing which is needed in this institution is a general social room for the women, something equivalent to the men's smoking room upon the other side of the house. We would suggest that the space occupied in the basement by the laundry (which ought to be removed and which ought never to have been installed where it is) would make a good room for the purpose suggested.

The insane asylum, which was built a few years ago, and which has been described in some of the former reports of this board, is in a most excellent condition.

The general health of the inmates has been excellent during the year. At the time of the inspection (September 13) not a person was confined to the bed on account of illness.

The institution contained 150 inmates, including 17 prisoners and 46 persons classed as insane, 38 of whom are confined in the asylum.

HILLSBOROUGH COUNTY ALMSHOUSE.

This institution is located in the town of Wilton, some four miles from the railroad station, substantially on the top of a hill, which is much better situated for a summer resort than for a large charitable institution which must be maintained with exacting care year in and year out. It is, however, gratifying to be able to state that the great mistake made in selecting this location for a county almshouse, asylum, and workhouse, has been recognized and, urged by the imperative necessity of new buildings, is about to be abandoned, the county having purchased a new farm at Goffstown and already commenced the erection of new and substantial brick buildings.

The present institution has been most unfavorably reported upon

more than once by this board. The buildings are almost entirely of wood, built as cheaply as possible, unsafe in some particulars, and in constant danger of being destroyed by fire with great loss of life.

At the time of this inspection (June 12) there were two hundred and eighty-eight inmates, besides forty-one prisoners, making a total of three hundred and twenty-nine. At one time during the past winter there were over four hundred souls at this institution—an excessively overcrowded condition. About one hundred of the inmates belong to the insane class—72 women and some 30 men.

One of the noticeable features which appeals strongly to the humanitarian is the presence of some sixty children who ought to be brought up under conditions far removed from the object lessons of crime, vice, and immorality which they are now daily receiving in spite of the most careful training and watchfulness the superintendent and matron, with their assistants, can exercise over them. Although a law was enacted at the last session of the legislature allowing certain orphan institutions to take children from the county almshouse, not a single application has been made for a child. The superintendent, however, frequently finds a good home for some child in a reputable family.

The buildings have been painted during the past year so that to the eye they present a better appearance than for years. Inside painting has added much to the neatness and healthfulness of the rooms. They are kept clean throughout.

The water supply is inadequate although recently somewhat improved. During the past winter at one time water had to be hauled for domestic uses.

The danger from fire is a matter to which we have before called the attention of the county. Small streams of water from the stand-pipes might put out a fire in its first stages, but if it had got under much headway before being discovered complete destruction of the buildings with a large loss of life would probably follow. The superintendent is exercising all the precautions within his power to prevent such a catastrophe. A watchman patrols the premises from 7 o'clock in the evening till 4:30 in the morning, and officers sleep in every ward but one.

The general management of the institution appears to be excellent.

CHESHIRE COUNTY ALMSHOUSE.

This institution remains in practically the same condition as when last reported upon. It has about sixty-five inmates, eighteen of which are classed as insane, and four are prisoners.

No special improvements have been made during the last two years; the walls of some of the rooms have been newly painted. Some improvements are needed. Fire escapes should be placed upon the main building. The rooms in the attic now used for a house of correction should be abandoned *in toto*; it is not a suitable place for prisoners. The latter have to go through the main house to reach these rooms; they are illy constructed; in fact, they are to be condemned from every standpoint. If the county continues to send prisoners to this institution some other provision should be made for them.

We think it would be wise for the county to construct a small laundry building, and use the room now occupied for a laundry for the purpose of furnishing more room for the insane inmates.

It is certain that the county ought to take into consideration the suggestions herein made, and appropriate a sufficient amount of money to make the needed improvements.

SULLIVAN COUNTY ALMSHOUSE.

This institution, located in Unity, five miles from Claremont railroad station, so far as the buildings are concerned remains in practically the same condition that existed when our last report was made. Some improvements, however, of considerable importance have been made, to wit:

1. The water supply of the institution has been materially increased by connecting the reservoir,—which is situated on a hill ninety-three rods distant from the almshouse—with another spring. This addition has thus far given the institution ample water for all domestic purposes; but during the dry period of the present year it was drawn upon to the extent that only about one foot of water remained in the reservoir. While this condition continued some economy was practised in the use of the water.

2. The commissioners have endeavored to protect the buildings in a measure from destruction by fire, and to this end have erected a stand-pipe two inches in diameter in the main building, which

goes from the basement to the attic, and to which is connected upon the first, second, and third stories of the building a sufficient amount of hose to reach to all parts of the institution. There is a fall of 120 feet, which gives a pressure sufficiently strong to throw water over the entire building. This provision against fire would be of great service if a conflagration should be discovered in its incipient or early stages, but if it was well under headway it is not probable that the streams thrown from the two-inch pipe would be sufficient to suppress it. No provision has been made for an outside fire service, there being no hydrant or place to connect hose except the stand-pipe mentioned.

3. The sewer system of the building has been overhauled and relaid so as to give good service. Iron pipe was used throughout, and the sewage is now conducted to a reasonable distance away from the buildings. The soil pipe was extended through the roof of the main building so as to provide for the ventilation of the sewer.

In addition to the above mentioned improvements, the buildings were last year all painted throughout. They are kept in a most excellent condition. A degree of cleanliness prevailed throughout the entire institution which is exceedingly gratifying. Indeed, much praise is due to the matron for her efficient oversight and constant exertion to keep the buildings in the best possible sanitary condition.

The asylum for the insane, which is a separate building, might be taken as an example so far as neatness and cleanliness is concerned, by every similar institution in the state.

Not a patient is under lock and key through the day. Some of the patients that were formerly kept locked up now have their liberty almost entirely unrestrained. This condition has been brought about by personal interest in the patients and a constant effort to better their condition, the success of which has been very marked.

A stand-pipe has been constructed upon the first floor of this building with an ample amount of hose to reach to any part of it.

The institution is provided with two Babcock Chemical Fire Extinguishers.

There were present at the time of the inspection in August, sixty-three inmates.

GRAFTON COUNTY ALMSHOUSE.

This institution, which is located about two miles from Woodsville, upon a site most favorable to good drainage, upon the bank of the Connecticut river, while remaining substantially the same as heretofore, has received some important improvements during the present year.

The water supply has been largely increased. There is a reservoir which holds 45,000 gallons, supplied ordinarily with excellent spring water, but supplemented by a pumping station, which, when needed, can force water from the Connecticut river into the reservoir, which is situated at an elevation sufficiently high to give about 62 pounds pressure per inch upon the pipes at the almshouse. The supply from the springs is ordinarily sufficient for all purposes, so that it is only occasionally that the pumps have to be used.

Four out-door hydrants have been established, with 300 feet of hose for use with these hydrants. The pressure is sufficient to throw a stream of water 20 feet higher than the almshouse, and all the buildings can be reached with the water. The hose is 2½ inch with 1 inch nozzle.

There is a standpipe inside the main building, to which is attached 500 feet of 1 inch hose with three-eighths inch nozzle, and with which all parts of the interior can be reached. The hose is attached upon each floor from the basement to the attic.

The hydrants upon the outside of the building are covered with a small house, with hose constantly attached and ready for immediate use.

No night watchman is at present employed, but it is the intention of the commissioners to engage one immediately.

The buildings, as a whole, are in a fair state of repair. The asylum for the insane needs to be changed in some respects. It is by no means well ventilated, and its general cleanliness is not of as high degree as it ought to be. The internal arrangement and construction of the building does not make it so easy to maintain as good sanitary conditions as are found in some of the similar institutions in the state.

At the time of the inspection in July the institution contained 107 inmates, 23 of whom were confined in the asylum for the insane.

COÖS COUNTY ALMSHOUSE AND ASYLUM.

At the last session of the legislature, the Coös county delegation appropriated $15,000 to repair the buildings and to erect a new building for the use of the insane, this class having formerly been kept in a building totally unfit for the detention of any person.

The instructions of the delegation have been carried out in a most commendable manner by the county commissioners. The almshouse proper has been overhauled from basement to attic. Throughout the entire building hardwood floors have been laid, and the entire walls and overhead have been sheathed with kiln-dried bass sheathing in all the rooms and corridors—the walls are well varnished and overhead painted in tints. No plastering or paper is to be seen. This method of construction has the merit of utility and cleanliness. The locks have been changed so that one key opens every door in the building. New stairs and partitions have been constructed so as to divide the sexes. An office has been made in the main house.

The building is heated throughout with steam. Three chimneys formerly used for stoves are now used for ventilating flues.

A stand-pipe has been put in, extending to the top of the building, and hose connected with each floor for protection against fire. Hose is permanently attached to this pipe on each floor.

There is a bath-room and water-closet in the basement for men, and a like service on the second floor for the women. The closets are automatically flushed, and the bath-tubs are supplied with hot and cold water.

New sinks have been put in the kitchen, and this department placed upon a first-class basis.

The entire drainage system has been overhauled and put in good condition. The sewage has been discharged into the Connecticut river.

The new asylum for the insane, now completed and occupied, is a wooden building 34x64 feet on the ground with a projecting front 7x20 feet, two stories high, with a large basement. The latter is used for pipes and flues for heating purposes.

Each room is heated by indirect radiation. The rooms are also supplied with water-closet, and each has a ventilating flue.

There are twenty-four rooms on the two floors and four rooms in

the attic that might be used in case of necessity. There is a bath-room on both floors, also ample corridors and sitting-rooms. A room has been made in the attic for infecting and fumigating purposes in case such is needed.

The building has a stand-pipe to which is constantly connected a sufficient amount of hose to reach to every part of the building.

The floors are entirely of hard wood, and the walls and ceilings finished in bass sheathing, well painted and varnished.

In addition to these improvements, a new 75 horse-power boiler has been put in for heating purposes in a building some 75 or 100 feet distant from the asylum or almshouse.

A chimney 9 feet square at the base and 75 feet high has been erected. There is no fire either in winter or summer in the asylum and the commissioners are soon to put in incandescent electric lights in place of kerosene lamps, so that after this improvement is made there will be absolutely no fire about the building.

The water pressure is sixty pounds to the inch. From a hydrant outside water can be thrown over all of the buildings, regular fire hose being used.

In July of the present year the institution had only 58 inmates, a smaller number than usual.

The general appearance of the institution at the time of the inspection was most excellent. In fact, it was hardly recognizable as the old Coös County Almshouse, so much have the improvements changed its appearance. The county is to be commended for the work it has done in the direction indicated, and much credit is due to the commissioners for their promptly carrying out the recommendations of the county delegation.

N. H. ASYLUM FOR THE INSANE.

The superintendent respectfully submits a report of the New Hampshire Asylum for the year ending September 30, 1894.

The year commenced with 368 patients—176 men and 192 women.

The number admitted during the year was 187—92 men and 95 women.

The number of different persons treated during the year was 542—264 men and 278 women.

The mortality rate for the year was a fraction over six per cent. Out of the large population cared for no suicide or other serious casualty occurred.

The percentage of recoveries, based upon the number of *different* persons admitted and excluding all cases of alcohol or opium habit, was 27.68 per cent.—a gratifying slight increase upon that of the previous year.

During the past year the population at the asylum has increased much more rapidly than in previous years. During the past decade there has been an average yearly increase of eight patients. The increase, however, for the last year was larger than ever before.

On the first of October, 1894, there were 402 patients. This remarkable increase has strained the capacity of the present buildings to their utmost, and leads the superintendent in his annual report to emphasize the necessity for new buildings.

During the last decade two buildings have been located at the asylum, one the Bancroft building for convalescent women, and the other a new building for convalescent male patients, as yet unnamed, in process of erection. When this new building is completed, the asylum will have accommodations for 350 patients.

There will still therefore be over fifty more patients than there are accommodations.

The two buildings above referred to, while they are models of their kind, are designed for only a special class of patients, the convalescent and the appreciative insane, the number of which at any one time is comparatively small. Thus it happens that while the classification of certain forms of mental disease has been facil itated by the erection of these buildings, the congestion in the wards for the chronic and the acute insane has not been materially relieved.

Judging from the census reports, and from the steady increase of insane patients at this asylum, the inference is reasonable that insanity, as a disease, has not increased, but that the number of insane in the state have increased in proportion to the increase of population.

It is to be hoped that this increase in the population of the state may continue rather than decrease, being as it is an evidence of the material prosperity of New Hampshire. This average yearly increase among the insane, however, emphasizes the fact that the state ought to provide additional accommodations for this increase.

At the present time the New Hampshire asylum is suffering from the evil effects of overcrowding. There is an absolute lack of sleeping accommodations and dining room facilities. Every patient that is admitted in excess of the accommodations must be located either where his own influence upon others, or that of others upon him must be injurious. The attention of the trustees is therefore very properly called to this demand for additional accommodations.

The New Hampshire asylum was originally intended to be the remedial institution of the state, and during the past four years the State Board of Lunacy has regularly committed to the institution all cases of acute and recent insanity whose support would devolve upon towns and counties, and whose cases seem to require remedial treatment. If the humane work of this board is to continue, and if the institution is to maintain its remedial character, increased accommodations must be provided.

The new building in process of erection is designed to accommodate twenty-five men of the convalescent and appreciative class. Work was begun in the spring, and has been pushed forward as

rapidly as circumstances would allow. It is connected by a subway with the main building. Through this underground passage the food will be taken from the main kitchen to the building, and the hot and cold water and steam pipes from the boiler house will also be contained therein. The style of architecture is of the colonial mansion house type. There is a large central living room on each floor, lighted from a wide skylight, and the individual sleeping rooms are arranged around the outside, thus giving plenty of air and sunlight to the occupants. When completed it is confidently believed that there will be no pleasanter house for the convalescent insane in the country.

During the season the Walker convalescent cottage at Lake Penacook has continued its good work. From twenty to twenty-five patients have occupied it throughout the warm months.

DISPOSAL OF HOUSEHOLD WASTE.

The disposal of domestic garbage, especially the waste from the kitchen, is a question which has long perplexed and is still perplexing cities, towns, and individuals. Many methods have been attempted, some of which have met with immediate failure, while others are more or less successful when applied to cities under the general management of a special department; still the problem is one which has not been definitely settled. Processes for the utilization of certain products which are found in garbage have been tried with different degrees of success; cremation furnaces have been employed in many cities with varying results. None of the methods in use have yet solved the problem in a satisfactory way; there are objections to every system of greater or less magnitude.

Whatever work has been done in this direction upon anything like a systematized plan, has been accomplished only through the efforts of municipalities at the expenditure of large sums of money. In some cities the cost of collecting and disposing of domestic garbage aggregates a very large amount of money, and even then the service is not as efficient as it ought to be.

This great subject has been under consideration for several years by sanitarians in all parts of the world, so important is the question of preventing disease producing nuisances from becoming widespread through the neglect of individual families properly to dispose of the household waste.

A committee of the American Public Health Association has this subject now under consideration, and at the recent meeting of that association, in Montreal, a preliminary report was made by the committee. This report deals with many methods of garbage disposal, as well as of the character of city refuse and its collection and removal to the place of disposal. The committee, after reviewing the entire subject, closes its report as follows:

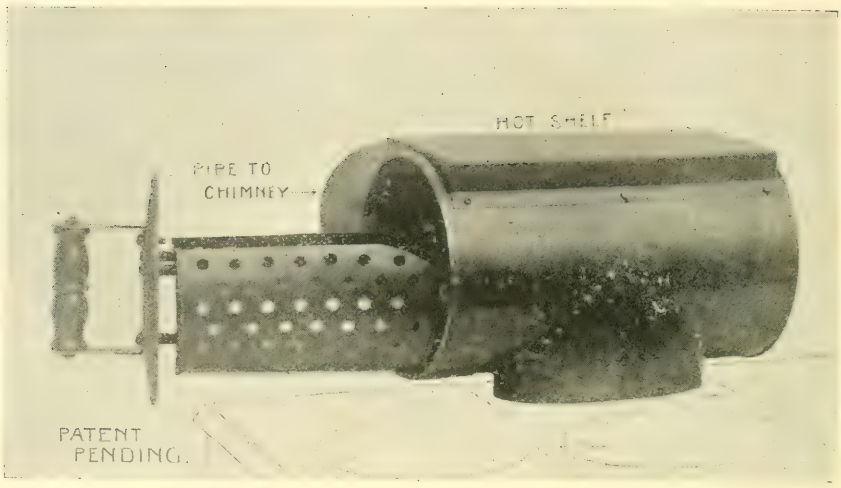
At the present time it can only state: That there are several ways of disposal which have been and can be made satisfactory from sanitary points of view; that cremation of garbage is at present in the lead, so far as the number of applications and the character of results are concerned; but that it has not everywhere been entirely satisfactory in both economical and sanitary respects.

This probably is a correct statement of the situation of the garbage question at the present time as applied to the corporate efforts of cities to solve the problem of its disposal.

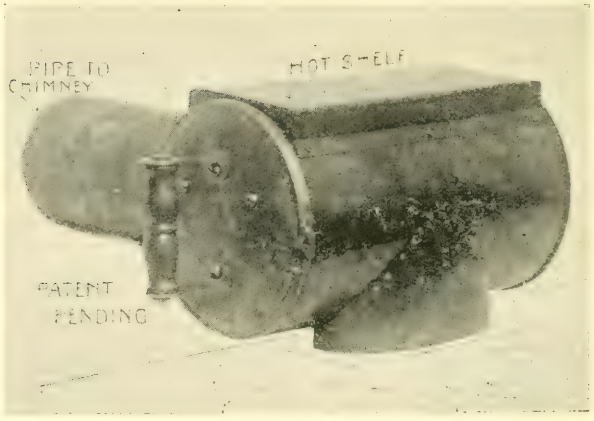
When the report of the committee came up for discussion Dr. Samuel H. Durgin, chairman of the board of health of Boston, said:

I want to show to the association photographs of a recently invented kitchen garbage dryer, and will occupy but a few minutes in explaining its use. It is well known to the association that I have entertained the belief for some years that all kitchen garbage should be disposed of in the kitchen before it becomes a nuisance, and thus avoid the disgusting odors and expense which attend the present methods of handling. It consists of a perforated sheet-iron basket, with a tight bottom, and a capacity of three or four quarts. It is inserted into an expanded section of the stove-pipe, a short distance above the stove, and allows the hot air and smoke to pass on all sides of the basket. It is easily withdrawn from its position and replaced with one hand. It will receive the garbage as it occurs several times a day, and needs to be emptied but once in twenty-four hours. The garbage dries to a charcoal without burning, and becomes an excellent fuel for kindling the fire in the morning. It does not compromise the use of the stove, interfere with the draft, require more fuel, or cause any odors.

While considering its sanitary advantages, we should not forget the financial side of this question, for it is costing most cities more money to perpetuate the kitchen garbage nuisance by present methods of storage and removal than for the maintenance of their entire health departments. In my city of 500,000 inhabitants it cost the city last year for collecting and hauling away the kitchen garbage alone $182,000, and this sum must be increased yearly, without taking into account the additional cost of a public cremator or reducer. I have nothing to say against the large public crematory for the general rubbish and wastes of the city, which always contain more or less garbage; I believe that this general mixture, excluding kitchen garbage, can and should be burned, and its ashes put to the uses of clean gravel. I will pass these photographs around, and say that they represent one which I have had in use in my house for the last two



Garbage Drier Open, Showing Perforated Sheet-Iron Basket.



Garbage Drier Closed.

months, and which absolutely disposes of the nuisance and expense of handling kitchen garbage.

The one in use in my house, the only one yet constructed, was invented and made by Messrs. Taylor & McLaughlin, at 120 Fulton street, Boston, and was the result of a short talk with them about two months ago. I am told that the cost will be about three to five dollars.

The photographs alluded to have been reproduced in half-tone, and are here given in order to illustrate the simplicity of the dryer as well as the readiness and ease with which it can be managed.

The first illustration shows the waste-holder nearly withdrawn from its receptacle. It may be taken out and filled with the kitchen waste of any kind or character capable of being destroyed by fire when dry, and at once placed in the pipe there to remain until its contents are thoroughly dried, after which all the material which it contains is to be dumped into the fire in the kitchen range or stove. It would seem that no simpler or more efficient and convenient method of disposing of the waste of the individual kitchen than this plan can be devised. Every one knows how quickly and readily the garbage box or barrel becomes a festering nuisance, especially during the warmer months of the year. With an apparatus of the kind illustrated, there would be no need whatever of the garbage barrel, and thus an offensive and dangerous nuisance may be easily prevented.

The second illustration shows the receptacle with the waste in its proper position for drying. The water which the waste contained, when placed in the receptacle, is rapidly carried off in the form of steam or vapor by the chimney, and no odor or other objectionable feature is connected with it. The flat top, which may serve for a hot shelf, readily suggests the uses to which it may be applied.

It looks as if this method is a perfectly feasible one, simple in all of its operations and pre-eminently designed to solve the question of the disposal of kitchen waste wherever it is used.

In considering this method of the disposal of household waste, Col. W. F. Morse of New York, who has given the subject a great deal of attention for the past few years, says: * For several years there have been efforts made to introduce attachments to stoves

* The Sanitarium, April, 1895.

that would care for waste in a cleanly way, and which would do the work required and not be troublesome to operate. Most of these inventions proceeded upon the plan of burning by a hot fire garbage containing water in suspension, insisting that this should burn from the bottom upward with a down draught, thus reversing the natural law of combustion, and failing in the effort to do by main force what could have better been done by a little attention to obvious facts. Other methods deposited the garbage in the end of the fire-box or at the back of the oven, where the space was limited, and from which it had to be transferred to a bright fire to consume it. None of these inventions have been found to be practical or have met with favor.

The Houshold Carbonizer proceeds upon a different plan. Recognizing the fact that household waste, when dried, will burn freely, and when carbonized or turned into charcoal can be used for fuel, this invention first places the garbage in a position where the water is driven off and the residuum transformed into a substance that will not only burn without extra fuel, but can be utilized as a new fuel or as a means of beginning a new fire.

In the joint of pipe or elbow that makes the connection between the stove or range and the chimney flue is placed a horizontal cylinder, somewhat larger in diameter than the pipe or elbow, and in length about twice its diameter. One end of this cylinder is removable, and attached to the inside of this is a basket or scoop, made of perforated iron a little shorter and smaller than the cylinder itself. The area of space around the basket is equal to the area of the pipe from the stove, so there can be no obstruction to the draught.

When the carbonizer is to be used, by means of a handle the cylinder-head and basket are withdrawn and the scoop filled with garbage and replaced. Small quantities of liquid are retained in the bottom of the scoop, which is not perforated. The heat from the fire passes around the basket and through the perforations, driving off the water, and chars the garbage into charcoal; the basket is then withdrawn and its contents emptied into the fire, burning with a clear, clean flame without offensive smoke; or the charcoal may be left until morning, and with the addition of a bit of paper and a stick of kindling wood used to start a new fire.

This operation of driving off the water by slow heat at a mod-

erate temperature does not disengage the noxious gases that are thrown out when the green garbage is placed in a hot fire; and as this work of evaporation is done in the smoke-pipe, there is no chance for escape of odors or vapors into the room.

The convenient location of the carbonizer permits waste to be put at once into the scoop as fast as produced, saving steps for the servants and preventing any accumulation of offensive matters.

The carbonizer can be put into the place of a joint of pipe of any size; or, if the height is not enough for a joint, can itself be used as the elbow or chimney connection. For set ranges arrangements can be made to connect with the chimney flue. For large houses, restaurants, hotels, etc., where the quantity of waste is large, the carbonizer assumes a rectangular shape, is vertical instead of horizontal, is enlarged to the capacity desired, and provided with sliding doors or covers which receive the garbage. The scoops or baskets are not removed; but the garbage, after being carbonized, is discharged through small doors at the bottom. The operation is continuous and requires no attention except to remove the charcoal and destroy it.

There are several sizes of the carbonizer, from the smallest, designed for a single family, up to the largest, destroying three or four barrels of waste per day. It may be made to correspond in style with the general fittings of the most expensive range, or built in an inexpensive way and sold at a small price.

This device is not merely a paper invention. For eight months it has been thoroughly tested and found to perform the work as above described. In houses where the carbonizer is used there is a notable absence of the garbage can, and the visits of the garbage collector are not required. It is absolutely a perfect substitute for those disagreeable household attachments, since there is nothing produced that cannot be turned into charcoal by the carbonizer excepting ashes from coal fires, tin cans, and broken crockery, and these are delivered to the weekly ash collector free from any contamination of putrescible matter and in perfect condition to be deposited anywhere without subsequent nuisance.

If it were possible to apply this or some similar invention on a large scale by legal ordinance, it would stop the carting of garbage through the streets, abolish the garbage dumps, do away with all sea dumping and water contaminations, save tremendous sums of

money, and bring peace and happiness to the souls of the city officials, whose duty compels them to collect and dispose of this vast bulk of dangerous and disease-breeding matter.

This practical, inexpensive sanitary invention is a contribution to the progress of sanitation, which is not equalled by the more pretentious and costly disposal methods heretofore in use. The simplicity of the device, the ease with which it can be applied, and the satisfactory way in which it does its work commends it to the attention of those who are looking for some relief from the garbage nuisance.

AMERICAN PUBLIC HEALTH ASSOCIATION.

Report of the Twenty-Second Annual Meeting at Montreal, P. Q., September 25-28, 1894.

BY G. P. CONN, M. D., PRESIDENT OF THE NEW HAMPSHIRE STATE BOARD OF HEALTH, CONCORD, N. H.

The meeting was a large one and the members devoted their time zealously to the work that was before them, therefore the number of papers read and discussed compared favorably with past meetings. All the northern and western states were represented, and most of them in the south. The Dominion of Canada was well represented, and the Republic of Mexico sent a good delegation.

The objects of the American Public Health Association, and the nature of the composition of its membership, are such as especially to commend it to the favorable consideration of an intelligent community.

Its object is not so much the cure of disease as the prevention of it. By the investigation of the most recent findings in sanitary science, and by the dissemination of the information thus acquired, it seeks to improve the definition and enforcement of the laws of health wherever men are gathered together on this continent. Its membership, therefore, is not confined within the limits of the medical profession, but includes all who desire to forward the object of the organization.

The Association has already published nineteen large and valuable volumes, increasing at the rate of one a year, and containing

the papers, reports, and discussions presented at the annual meetings. These volumes constitute in themselves a library upon sanitation; they are elegantly printed and bound, and are alone worth more to any person interested in hygiene than the cost of membership.

Among its members may be found physicians, lawyers, ministers, civil and sanitary engineers, health officers, teachers, plumbers, merchants, etc.,—in fact, every profession and many of the industries are represented in its list of members.

A gathering of this character requires more labor and diplomacy than some people think. The range of subjects connected with public health is exceedingly wide, and there is a danger of some members of the association dragging it outside of its proper province. Most of the questions to be dealt with have a professional, as well as a popular side, and it is difficult to deal with some of them in a scientific manner without using terms and methods unfamiliar to the lay mind. Those who have had charge of the papers this year have solved this difficulty with considerable success. They have conveyed the results of the most recent scientific research in an interesting and intelligible form, and there has been a careful avoidance of unnecessary technicalities.

It is impossible in a report like this to follow the whole programme and therefore I should only select from its numerous papers such as have special reference to this locality.

During the first session of the Association, a paper was presented entitled, "The Cart before the Horse." This paper was read by Dr. Benjamin Lee, secretary of the State Board of Health of Pennsylvania, who said in part:

"When those who speak the English language desire to characterize a line of thought or of procedure as being in the very highest degree ridiculous and absurd, they make use of the word, "preposterous," a word which they have had handed down to them from the days of ancient Rome; for the Roman with his strictly logical mind could conceive of nothing more grotesque and idiotic than placing that which should properly and reasonably be *pro—before,* whether in relative position or in sequence of time, *postero—behind* or *after.* The Saxon, with his love for the concrete and his fondness for epigram, crystallized the thought into the proverbial expression, "the cart before the horse." I know of no more forcible exemplification of this

trite but useful old adage than the absolute reversal which we so constantly find of the appropriate relative positions in point of time of the introduction of water supplies and the provision of systems of drainage. The first thought of the citizen who proposes to build himself a country residence is beauty of location. The second, architectural adornment. The third, possibly, a copious and pure water supply, and, with this, modern plumbing follows as a necessary accompaniment. Last of all, he or his architect bethinks himself that it will be necessary to find a receptacle for this considerable stream which he is going to divert from its natural course and fill with the accumulated filth of his household. That which should have been most carefully considered first, before a line was drawn or a plan designed, is left to be provided last, in some hap-hazard way, as if it were a trifling detail of no moment whatever. The problem may prove impossible of satisfactory solution to himself. Or if provision can be made in such a way as to relieve himself of annoyance, the chances are ten to one that his neighborhood will begin to complain of the flooding of his yard or the pollution of his well; or, what is still worse, and unfortunately of undoubtedly frequent occurrence, sickness may be created in families more remote, the cause of which is unsuspected and therefore unremoved.

The little towns among the hills and mountains of Pennsylvania are peculiarly fortunately situated for the production of an abundance of pure water. The municipal authorities of these towns are besieged by water supply contractors, generally from New England, and therefore having no local interests in the town, with offers to introduce water on very advantagous terms. The temptation is great and is often yielded to before a single rod of sewer pipe is laid in the streets. Then the "practical" and "sanitary" plumbers get in their fine work. Every ambitious citizen must have water all over his house with all the modern appliances. The kitchen water even though in greatly increased quantity may pass off over the surface and through the street gutters. But what shall be done with that discharged from the water closets? Happy thought! He no longer depends on the old family well for drinking water, so, into that, the soil pipe is incontinently discharged. So far so good. It does not annoy him. But he does not reflect that the same subterranean stream which supplies his well in all probability supplies those of the entire neighborhood. It can be readily understood how that which should have proved to be an inestimable blessing to the community may thus inadvertently be converted into a terrible calamity. Even in gravelly soils, where opportunity for filtration to a considerable degree exists between neighboring wells, this danger is a most serious one. It will easily be seen how

much it is aggravated in limestone regions where the water courses along underground for great distances, almost unobstructed. And yet it is just under these circumstances that the temptation to avail one's self of this so-called natural drainage is the greatest. The object of this paper may be briefly embodied in the two following propositions:

1. Copious water supplies, with the aid of what is known as modern plumbing, constitute a means of distributing fecal pollution over immense areas through the soil, through subterranean water courses and in surface streams, and can not therefore be regarded with unmodified approbation by the sanitarian.

2. The question of drainage and sewerage whether for individual residences or for communities should always precede that of water supply; and no water-closet should ever be allowed to be constructed until provision has been made for the disposition of its effluent in such a manner that it shall not constitute a nuisance prejudicial to the public health.

THE WELL WATERS OF OUR FARM HOMESTEADS,

was read by Frank T. Shutt, Chief Chemist Federal Experimental Farm, Ottawa. The subjoined is a brief synopsis:

The purest water is undoubtedly to be found in the country, and it is a necessity for farm animals as well as for man to have pure water, that milk from healthy milch cows may be wholesome and that butter and cheese may be likewise. Clay soils are more or less impervious to the absorption of filth, and in this we should be careful from a hygienic standpoint. Regarding the qualitative tests for diagnosing water, the writer thought no correct inference could be drawn from the sugar, nitrate of silver, or permanganate of potash test. The remainder of the paper consisted in a cursory review of wells and their environments, and directed attention to the fact that much impure water is consumed in the country with serious and often fatal results, and pointed out the principal lines upon which corrections should be made and a reform brought about: "As the agriculturalists form a very large proportion of the population, I think it well that we who take an active interest in the health of our people should endeavor to disseminate through the country knowledge regarding the injurious effects of impure water, and the precautions necessary to be taken if pollution of the well is to be avoided. I have no doubt that one of the beneficial results of this convention will be a keener and better and more intelligent understanding of this vital subject, an understanding

that will lead to purer water and better health upon our farm homesteads."

Dr. Fuller, bacteriologist in charge of the Lawrence experiment station of the State Board of Health of Massachusetts, after fully describing the filter of sand used and the results obtained in that city, gave the following conclusions:

During the five years preceding the use of the filter, the average annual death rate from typhoid fever in Lawrence was 1.27 per thousand inhabitants. The population of Lawrence is 50,000, and this average rate is equivalent to sixty-three actual deaths per year from the disease. During the past year there have been twenty-six deaths from typhoid fever in that city, a reduction of 60 per cent. Of the twenty-six who died, twelve were operatives in the mills, each of whom was known to have drank infiltrated and polluted canal water, which is used in the factories at the sinks for washing. Among the operatives of one of the largest corporations where canal water is not used, there has not been a single case of typhoid fever during the past year.

The test of the efficiency of the filter during the past year has been a fair one, because at Lowell, the sewage of which enters the Merrimack river nine miles above the intake of the Lawrence filter, there was, during the past winter, a severe epidemic of typhoid fever.

In conclusion, we may state that it has been found practicable to protect the consumers of infected water supply by means of sand filtration.

At the afternoon session Dr. J. D. Griffith of Kansas City, Mo., read a paper on the "Innocuous transportation of the dead." He opened by quoting instances where epidemics were renewed by the exhumation of bodies after years passed underground, and concluded that the danger from one just deceased from a contagious disease must be much greater. It matters not how tight the coffin may be, there is always an odor emanating in the car where there is a body. Hence, the necessity to protect the travelling public. To do this he did not think that the existing rules are sufficient, and he advocated that a special compartment be prepared and set aside on baggage cars for the transportation of bodies. This compartment should be lined with zinc and asbestos and covered with ice.

Dr. Hingston said that the bodies of people who have died from infectious diseases are not allowed to leave Montreal, and on general principles the transportation of dead bodies should be put a stop to.

This sentiment met the general approval of the meeting, and finally on motion of Dr. Bryce it was decided to refer the whole matter to a special committee.

The evening session of the first day was held in Windsor hall, and was devoted to a formal welcome to the Association by the Dominion and municipal officers, and closed with the annual address of the president, Dr. E. P. Lachapelle, of Montreal.

The address of welcome by the mayor is quoted in full:

To the Members of the American Public Health Association:

Ladies and Gentlemen: Permit me, on behalf of the citizens of Montreal, to extend to you all a most cordial welcome to our city. You have assembled here to hold the twenty-second annual meeting of your organization, and I assure you our city considers itself honored by your presence.

Your association, considered in its objects and in the result of its labors, is one of the most important on the American continent. Favor by every possible means the progress of science in matters of hygiene; see that everywhere practical measures are adopted to prevent sickness and epidemics; these are the objects of your association, and one cannot but acknowledge that such objects are noble, useful, and humane.

The all importance of public and private hygiene is now admitted by everyone, and no person will deny that both the e branches of medical science are very closely connected. They are connected not only with the health and welfare of the universe, but as well with the commercial and financial condition of cities and countries. The sanitary and commercial interests of the world are dependent upon one another, because when an epidemic breaks out, commercial transactions are stopped at once, misery and hardship are the consequence, and who will deny that misery gives birth to sickness? It is, therefore, with reason that hygienists give their undivided attention to the commercial interests of the world, because when these are prosperous public health is sure to derive great benefit therefrom.

Your association possesses an especial character of philanthropy and universality, because all its efforts tend towards the preservation of humanity from sickness and contagion. Such devotedness to the interests of your fellow citizens is worthy of admiration, and for that

reason alone I might consider myself especially honored at being called upon to bid you welcome to Montreal.

I, therefore, pray you to consider yourselves at home in our city, the commercial metropolis of Canada, and I sincerely trust that your convention will be fruitful, and will result in doing good to yourselves as a body and to the community at large.

You may rest assured that one and all of the citizens of Montreal appreciate fully the honor you have done them in selecting their city as the scene of the present convention, and that, whatever destiny may have in store for you, the good wishes of our people will always accompany you.

Dr. Gregorio Mendizabal, of Orizaba, Mexico, briefly addressed the gathering in Spanish. He referred to the commercial depression in Mexico consequent upon the financial crisis, and said that this had prevented some of the Mexican delegates, who had been anxious to be present, from coming here. However, realizing how important was the convention, it had been decided to send some one, and therefore he and one or two others were present. After alluding to the unspeakable pleasure it gave him to contemplate the mighty St. Lawrence and this great country, he referred to the "colony" of Hochelaga, which had developed into a great city, a city that was worthy of being the capital of any country in the world, a city whose name had become world-renowned, as well on account of its commerce as of its literateurs and poets. Speaking of the American Public Health Association, he said that science knew no country; the salvation of the people was the supreme law. The members of the association in their work were laboring as much for material progress and prosperity as for anything else, knowing that a sound mind was essential to a sound body.

THE PRESIDENT'S ADDRESS.

The president was loudly applauded on rising to address the gathering. In the course of his remarks he said that the Association had never, since its foundation, ceased to labor for the advancement of sanitary science, for the promotion of measures and organizations that should effect the practical accomplishment of the laws and principles of public hygiene. It had thus realized the brightest hopes and the most enthusiastic provisions of its worthy founders, and had extended its benefits and influence over the whole of

North America, the Republic of Mexico, and the Dominion of Canada, all three working together in brotherly emulation, recognizing no political boundaries, and valiantly striving to attain one unique and humane object—the dissemination to all of the knowledge of public hygiene and the development of respect for its decrees. He spoke of the causes which had led to the great progress in sanitary science on this continent during the last twenty years, referred to some of the important things which yet required to be considered, and concluded as follows: "The perspective of the future is very encouraging. The work done during the last fifteen years has been enormous; what may we not then expect of the next fifteen years? All over the continent, state, provincial, and local boards of health have been organized, and are working effectively; associations, conferences, and conventions are studying the most actual and urgent problems of public hygiene; everywhere, already, a prominent position is given to the teaching of sanitary knowledge; universities and schools obtain the services of competent and distinguished teachers, and are being rapidly equipped with laboratories of sanitary science; every city or district will soon have, if it has not already, its municipal laboratory worked by competent specialists. The practical scientific working is now created and advancing. The generation that succeeds us, luckier than we in this respect, will be in possession of all that is needed to ensure success. We shall drop out, wishing them courage and perseverance, and be happy if we can claim to have contributed according to our means to prepare the way for them and render less ungrateful the task we bequeath them. Without fearing to counteract the designs of God, we may continue to utilize the talents He has given us in seeking the best means of protecting our health and lives, and of attaining the average of longevity. Without wishing to frustrate the decrees of His supreme justice, let us not forget that contagious diseases and epidemics, although they may in a measure serve as punishment for the waywardness of man, are most frequently the outcome of his errors and ignorance in the preservation of his health, and, as such, they should be struggled against. The protection and preservation of one's health and that of one's fellow beings is not only a right, but a solemn duty."

On the motion of the lieutenant-governor a vote of thanks was accorded Dr. Lachapelle for his address and for his labors on behalf

of the association, the gathering closing with the playing of "God Save the Queen" by the orchestra.

MORNING SESSION.—WEDNESDAY.

The greater portion of the morning session of the American Public Health Association was devoted to the reading of papers on that white plague of humanity, consumption. Every phase of the subject was discussed, and some valuable information for the general public, as well as the medical man, was imparted.

Dr. N. E. Wordin, of Bridgeport, Conn., showed that consumption was an infectious or communicable disease, and that the principal source of danger of its spreading lay in the sputum ejected by a pthisical patient when it had become dry.

He considered that the most practical and the quickest way of restricting the spread of tuberculosis would be to put it on the list of infectious or communicable diseases to be reported to the health officers. There should be a thorough disinfection of all houses in which the disease had occurred, and this should be put on a public record. There should also be a disinfection of hotel rooms, sleeping car berths, rooms, and prison cells which had been occupied by consumptives before they were occupied by any other person. Transportation companies should be compelled to thoroughly disinfect cars and bedding under the superintendence of the board of health of each state as they come within its borders.

No tuberculous female, he said, should nurse a child; milk from tuberculous animals should never be used; overcrowding in houses should be prevented; consumptives should never spit upon the floor of any public or private building, or any conveyance; the sputum should be immediately burned; beds, bedding, and clothing used by consumptives should either be disinfected by steam, or washed and boiled by themselves; no one should sleep in the same room as a consumptive, or in a room which has been occupied by a consumptive until it has been thoroughly disinfected; milk should be thoroughly sterilized before being served to children; there should be public inspection of dairies and slaughter-houses; milk should be tested for tuberculosis, so that the disease might be stamped out in cattle; the general hospitals should be provided with special wards for phthisical patients, and in them should be enforced the proper measures for the elimination of infection.

Dr. F. O. Donohue, president of the New York state board of health, contributed an able paper on "Examination of the Milk Supply for Tuberculosis in the State of New York," in which he detailed what had been done in this direction.

Dr. Paul Paquin, member of the state board of health of Missouri, submitted a very thoughtful contribution, in which he discussed the question, "Should the Marriage of Consumptives be Discouraged?" and gave several conclusive proofs in support of the affirmative.

Dr. Sewell of Denver read a paper on "The Climatic Segregation of Consumptives," in which he gave a special boom to Colorado.

The committee on restriction and prevention of tuberculosis reported progress, and asked to be continued another year.

A general discussion on the papers dealing with tuberculosis then took place, and at its close an adjournment was made for luncheon.

The afternoon was devoted to pleasure, the members of the Association, many of whom were accompanied by their wives and daughters, taking in the trip which had been arranged down the Lachine rapids. Needless to say, everyone enjoyed it, and it was a feature of the convention which will long live in the memory of the visitors.

THE EVENING SESSION.

The Association resumed its sessions in the evening, when Dr. F. Montizambert, general superintendent of Canadian quarantines, contributed a very interesting paper on "Quarantine Appliances," which was illustrated by means of a number of lantern slides. He began by explaining that, although the title of his paper would seem to limit him to appliances only, he was sure that, in view of the visit to the Grosse Isle Quarantine station which had been arranged, it would be of general interest if he also showed some views of other parts of buildings at that station, so that when the delegates arrived there they would the more clearly understand the working of the different parts of the system.

HYGIENE OF THE YOUNG.

Dr. J. C. Cameron, professor of obstetrics and diseases of children at McGill College, submitted a very practical contribution on "Some Points in the Hygiene of the Young in Schools," which was illustrated by means of a number of diagrams. He pointed out that mind and body were dependent upon each other, and consequently for the proper development of the individual the body must be considered and cared for as well as the mind. He referred to the fact that the physical culture of school children was in too many cases not properly cared for, though in the case of boys, who engaged in outdoor sports, etc., the effects were not so marked as in girls, who indulged less in outdoor sports and were inclined to be more sedentary. Spinal curvature and pelvic deformity, he showed, were liable to result from assuming an improper attitude when sitting, standing, or walking, and consequently it was of the utmost importance that school children should be taught to sit, stand, and walk properly. Pointing out what he considered were some of the things what might be done to improve the personal hygiene of the young in schools, he said that for training young children the kindergarten system was an ideal plan, and then came the simpler calisthenic exercises.

In high schools and colleges a careful examination should from time to time be made of the physical condition of the pupils, and such courses of exercise prescribed as were suitable for their needs. Hygiene should be one of the subjects of study in schools. In large cities a valuable addition to the school staff would be an inspector of physical culture, to whom could be referred any suspected case of spinal curvature or pelvic deformity for examination and treatment. Youth was the time and school the place for the detection and cure of irregularities, whether physical or mental.

MORNING SESSION.—THURSDAY.

The following resolutions were introduced and referred to the executive committee, by E. R. Campbell, M. D., of Bellows Falls, Vt.:

Resolved, That the American Public Health Association in convention assembled records its protest against the use of alcoholic liquor as a beverage, especially among the young, believing that such use is attended with great danger to the health, the individual, and society.

The following resolution, moved by Dr. Henry Sewell of Denver, Colorado, was also referred to the executive committee:

Resolved, That a committee consisting of not more than five members be appointed by the president of the American Public Health Association to consider the best form of sanitaria for consumptive invalids, and the most favorable locations for the same within the United States, the report of the committee to be made at the meeting of the Association held in 1895.

Dr. George Homan of St. Louis, Mo., offered the following resolution:

Whereas, It is the sense of the American Public Health Association that the pollution of potable waters in America has reached such a point that the national governments should be asked to take cognizance of the matter with the view of devising means of prevention and relief; therefore, be it

Resolved, That this Association memorialize the congress of the United States and ask that they shall authoriz the appointment of a competent commission clothed with power to fully investigate the whole subject of the pollution of rivers and lakes by municipal and manufacturing waste, and provided with sufficient means to enable them to conduct the examination in such manner as shall be deemed best, the results of said examination to be published from time to time for the public information.

Dr. Ralph Walsh of Washington, D. C., read a comprehensive paper on "Vaccine and Vaccination." He advised physicians to vaccinate children first at the age of six months and again at sixteen years, or better still to continue vaccinating the young infant up to the point of saturation, when the child would become absolutely impervious to either chicken-pox or small-pox. The doctor maintained that there is absolutely no danger in vaccination so long as the vaccine is pure and the operation properly performed. To secure proof that the patient was vaccinated to the point of saturation he would vaccinate at six months of age, or earlier, and then each succeeding six months until no result is obtained, making test re-vaccinations at intervals for a few years thereafter. The lymph should be used direct from the propagator, holding him responsible. The lecturer concluded that so-called cow-pox is simply modified variola. The admixture of glycerine with vaccine lymph not only destroys the extraneous bacteria, but prolongs the activity of the lymph. The selection of lymph and the simple but important operation of

vaccination has not received from the profession the attention deserved. The accumulation of unvaccinated material and consequently the increased danger of outbreaks of small-pox is caused by the general practitioner neglecting to perform his duty at the proper time.

Your delegate presented a report for the committee on car sanitation, which is printed in full in this report.

A report of the Montreal meeting would be very incomplete without mention of the excursion of its members to the quarantine station at Grosse Isle. The Association is under obligation to the municipal government of Montreal, who through Dr. Lachapelle gave transportation and every attention to the members. It is about two hundred miles from Montreal to the quarantine station, and the trip took about forty hours, allowing a stop of five or six hours in the beautiful city of Quebec.

It may be said that two or three years ago, considerable comment was made regarding the inefficient condition of the quarantine of the St. Lawrence river, and it was not at that time considered by sanitary authorities to be equal to the necessities and progress of the times.

Nevertheless those who went to Grosse Isle Saturday with the members of the American Public Health Association could not see much on the island that was in existence two years ago, beyond a few sheds for immigrants. All the principal buildings and the appliances for disinfection have been erected since that time. The extent of the improvements may be judged by the fact that the Ottawa government has found it wise to spend no less than a hundred thousand dollars on the station since the newspapers called attention to its dilapidated condition.

One hundred thousand dollars is a large sum of money, and it may be that everything was not bought at lowest possible prices. It will, nevertheless, be satisfying to the public to know that the efficiency of the quarantine can no longer be suspected. That was the unanimous verdict of the American specialists who visited it.

Grosse Isle is some forty miles from Quebec. The river is so wide at that point that the ocean steamers pass more than two miles from the island. They are met in mid-channel by the *Challenger*, a small tugboat attached to the station, and if there has been any case of infectious disease on board, the passengers and baggage are

taken ashore. A pier is now contemplated to allow the steamers to land their passengers directly.

On landing the passengers are sent to the various buildings provided for them. There is a new and very comfortable building for first class passengers, another for intermediate passengers and six sheds for immigrants. From the top of the saloon passengers' quarters a magificent view of the surrounding islands, the river, the mountain, is to be had. As the bedding, cooking utensils, etc., can be brought from the ship, there are no other hardships attached to detach than the loss of time.

The bunks in all the buildings are of galvanized iron and easily dismounted. There are also an adequate number of compartments where the body is disinfected by shower baths.

The personal baggage of the passengers, such as fur and leather, which cannot support steam heat, is disinfected with bichloride of mercury.

All the other baggage is packed into wire trunks. There is one for each passenger, who is given a check for his baggage. These trunks are then carried into solid iron chambers, which are closed with jacketed doors and steam is turned on.

By a clever automatic arrangement the engineer receives notice of the degree of heat inside of the bundles under process of disinfection and the variations of the thermometer are also automatically registered on a dial, which is preserved as a record. After the baggage has been subjected to a heat varying from 212 to 239 degrees for half an hour the steam is pumped out, and the goods are taken out from the other end of the chamber absolutely dry.

Each traveller receives a check attesting that his baggage has been duly disinfected, and he is ready to proceed with his journey.

On the return trip an informal meeting was held in the forward cabin of the steamer, and cordial speeches of recognition of the efficiency of the present management of the quarantine were made by many distinguished sanitarians from the United States and Mexico.

It was the unanimous opinion of all that the Dominion of Canada had not made any mistake in her expenditure of money to protect herself and the United States from contagious and infectious disease.

The St. Lawrence river is a great thoroughfare for traffic and passengers to Canada and the United States, and therefore sanitary

and other authorities are naturally critical of the existing conditions and were very glad of this opportunity to examine the quarantine, and to testify that its present condition was in accordance with the progress of sanitation, and equal in all respects to that of other places of the same importance.

The quarantine officer, Dr. Montizambert, showed us every attention, and he is entitled to great credit for the vast improvement made during the past two years.

At the morning session Friday the following officers were elected:

President.—William Bailey, M. D., Louisville, Ky.

Vice Presidents.—Granville P. Conn, M. D., Concord, N. H.; Gregorio Mendizabal, M. D., Orizaba, Vera Cruz, Mexico.

Secretary.—Irving A. Watson, M. D., Concord, N. H.

Treasurer.—Henry D. Holton, M. D., Brattleboro, Vt.

There were also three members of the executive committee elected, and it was unanimously voted to hold the annual meeting for 1895 in the city of Denver, Colorado, the date to be fixed by the executive committee.

REPORT OF THE COMMITTEE ON CAR SANITATION.[1]

BY G. P. CONN, M. D., CHAIRMAN, CONCORD, N. H.

A report upon this subject must include several topics, for in order to bring before the public a full realization of its importance, we must consider the construction, the heating, lighting, and ventilation of coaches, as well as the methods of car cleaning now in use by the managements of most roads.

This last is most essential, as it is the first principle of sanitation, without which nothing like a healthy standard can be assumed.

The problem of car sanitation is one of complex character, and involves so many mechanical questions that one can hardly be expected to bring out in a single paper. I have endeavored to get the opinions on this subject from other members of the committee, but have not succeeded in doing so, as for various reasons the different members have begged to be excused, therefore I have selected from the opinions of sanitarians and practical mechanics such quotations as seemed to have a concise, practical, and unbiased bearing upon the conditions necessary to secure sanitation of passenger coaches.

In the design of a car for the transportation of people it is important that it be constructed with a view to stability, safety, and endurance. It must be constructed with a strength equal to the strain which is expected of it, in order that it may be safe to passenger and employé. This is important, for without strength and capacity for endurance, it would be a veritable trap to every one having anything to do with it. It is virtually and for the time being a house on wheels, in which the varying number of people

[1]Presented at the Montreal meeting of the American Public Health Association.

are expected to make their homes for a longer or shorter period, according to the distance which they may be expected to travel. Therefore, like a house it should be constructed upon sanitary principles, in which ventilation, heating, and such conditions as will allow it to be kept clean, are paramount factors in every case. Unless these sanitary principles can be carried out and are made permanent, then this house on wheels becomes unwholesome and unhealthy, and the conditions become favorable to disease or of disseminating it, should a contagious or infectious malady find a place within its walls. Theoretically speaking, a room or a car into which a large number of people are to assemble should have left out of its construction everything that is calculated to foster or develop disease germs, therefore the plainer it can be made, the less upholstery, carpets, and curtains that are placed within, would seem to be the best calculated for health. Practically, however, the public demand something more than plain walls and plain seats, and forget the conditions necessary for sanitation in their desire for luxury. This is an unfortunate circumstance, but it is necessary to deal with the problem as it exists. Probably cars could be constructed with much less expense on leaving out much of the draperies, etc., that are now considered necessary ; but as the public demands the luxurious apartments which we find in all well appointed cars to-day, we shall be obliged to consider the different classes of coaches just as they now exist on most of our long lines of travel.

Referring to ventilation it is now twenty years since the state board of health of Massachusetts instituted an investigation into the condition of passenger coaches. They found that the atmosphere of the ordinary coach contained from one to six times as much carbonic acid gas as other public assembly rooms, such as churches, theatres, and public halls. The same year, 1874, at the meeting of the Master Mechanics' Association, the master mechanic of the Boston & Albany, and also of the Old Colony railroad made a report on that subject. It was taken up by the association, and considerable discussion followed. Some improvements came from this action, but since that period the progress of ventilation in cars has not been rapid ; in fact, it can scarcely be said that any improvements have been made. Recently, state legislation has placed the obligation upon the management of railroads to use steam heat,

therefore the necessity of further improvements in ventilation has become apparent to every one. In ordinary weather during the winter, the problem of how to heat the car with steam and not have it too warm, is far more difficult in solution than it is to prevent it from becoming too cold. These difficulties are largely due to the fact that the men who have charge of this work are incompetent to carry out the designs of the inventor of steam heat. They have little or no conception of what constitutes good atmosphere in a coach, and they care but little about their work except that the time goes on and they draw their pay. They have no instructor beyond the mechanic who simply shows them how to turn valves which admit the heat, and to shut it off, and the whole problem, as far as they are concerned, is how to keep heat enough in the car to keep it warm. The changing of the atmosphere of the car is of but little moment to them; they are constantly going in and out of the car at every station, and perhaps may be pardoned for not noticing the atmospheric condition that obtains throughout the train.

Another fact in car sanitation, and to me perhaps the principal one, as it involves every principle of sanitation, is absolute cleanliness. This may be impossible in coaches, yet a near approach to it need not be considered impracticable.

Cleanliness is the first principle in sanitation whether it be of cars or houses, and seems like a very simple matter. But when we consider that it involves in its principles cleanliness of atmosphere as well as material, then the problem becomes greater, for in keeping the atmosphere of the car clean as well as its floors and ceilings, you have arrived at what may be called true sanitation. The problem of keeping a car clean is greatly enhanced by the fact that very many good people allow themselves and their children, when riding upon the trains, to become slovenly in their actions, throwing things upon the floor of the car that never would be permitted in an ordinary dwelling house. Why it is that people are so forgetful of good sense and good manners, when riding upon trains, is past comprehension; yet we see it every day, and the coaches become excessively filthy from that cause alone. It may not be easy to break up such habits, yet, if the trainmen formed habits of cleanliness in regard to the coaches which are under their care, it would have a very beneficial effect on the passengers. In the Pullman and Wagner coaches, where porters are employed to wait upon

passengers and keep the car clean, when the occupants so far forget themselves as to cover the floor or carpet with the refuse of orange, banana, or apples, nut-shells, and other things which render a car unwholesome or unclean, and the porter goes around with his dust-pan and brush cleaning it up, it does not take a great many miles of travel for such people to see the error of their ways and to discontinue them. The same might be true of the ordinary coaches if the brakeman or person in charge should perform the same acts, for people naturally would become ashamed of throwing things upon the floor for another person to clean up in order to render the apartment comfortable.

Little need be said in regard to heating of cars, as that has become a question of legal importance. The accidents by fire became so numerous that the different state legislatures took it in hand, passed laws doing away with the ordinary stove and substituting steam heat. Unfortunately there was no concert of action with different roads in the use of steam heat, as each road experimented for itself, the consequence being many different methods of transmitting steam through the cars. Which of these is the best I am not able to state, but it is to be hoped that some uniform method will be adopted by which all roads will be able to effect interchange of cars, and that the instructions which trainmen should receive upon that particular subject shall be so uniform that there will be no difficulty experienced in keeping cars properly warmed and well ventilated.

To digress a moment, I would add that it has been found necessary to open schools of instruction in the use of the air-brake, and I am told that old and experienced trainmen after attending these schools have been surprised to find how little they knew of the practical application of what was supposed to be merely an automatic machine.

Now this instruction is secured by fitting up a car with all the mechanism of the automatic brake, and having a thorough mechanic for a teacher, and why not combine with that the teaching of car sanitation to the extent that the trainmen may fully understand how to use such devices as are now to be found on most passenger coaches.

In regard to the different systems of ventilation several experimenters and inventors have gotten up systems of their own, had

them patented, and endeavored to put them upon the market. Some of them are very complex and all of them require some knowledge of the subject or they cannot be made useful. All of them involve extra expense in the construction of a car.

The question of how to ventilate a car is one which the mechanic and the sanitarian must bring out together. It seems as though it would be quite impossible to invent any system that will change the air of a car while in motion, and at the same time be effective while it is standing still. With electrical power it may be possible to place fans in a car, the same as you do in a house, that will be effective when the car is standing still, but when the car is moving, the pressure of the atmosphere upon the outside is so great that considerable change will take place inside the car. Then again, this pressure of the atmosphere is so much different when the car is moving slowly than it is if the car is moving rapidly, that it brings up another point in the problem of ventilation to be solved by the practical mechanic.

Before the use of the power brake, the duties of the trainmen were almost constant and imperative, but with the advent of the automatic brake his duties were made much lighter and less exacting.

It is true that with the introduction of the various improvements that have been or may be instituted, a higher order of intelligence may be required than was necessary to assist in stopping or starting a train, yet that does not prevent the average trainman from doing good work, provided he has proper instruction.

The *Railroad Car Journal* publishes the report of the committee of the Master Car Builders' Association, from which I quote at length:

"In all modern systems of ventilation, sanitary engineers endeavor to have a plenum instead of a vacuum, or, in other words, to have a slight excess pressure inside of the building instead of a slight vacuum. With a plenum there can never be any cold drafts or admission of smoke, dust, or cinders, for the reason that the pressure would always be driving the air outward through every crack and opening. With a vacuum the reverse is the case, and dust, smoke, and cold air will find their way in at every crack. It is very desirable that the windows of passenger cars be so arranged that they can be locked fast in winter time; to prevent

one obstinate passenger interfering with the comfort of the whole carload, but this can only be done when a sufficient supply of fresh air is constantly being furnished to the passengers, comfortably warmed. The opening of the doors at stations is also a great interference with a uniform system of ventilation. This cannot be avoided, but the evil effects of it can be largely overcome by building the cars with an inner swinging door. Most of the modern, larger passenger cars having smoking rooms, double saloons, and heating apartments, can be very easily fitted up with a swinging door at the end of the passage in between these compartments, which will act as a kind of air lock and prevent a good deal of discomfort otherwise unavoidable. A convenient way of arranging the windows, so as to avoid the drafts and interference to the comfort of the passengers in the winter time, would be to have the outer sash arranged, as is commonly the case now, with the inner sash arranged so that when lowered they will lock themselves tight and can only be released by a lever at the end of the car, attached to a locking bar running the full length of the car on either side. These windows could be kept raised in summer time, the outer sashes being so that the passengers can raise them or lower them as they please. In the winter time, when these sashes are lowered no windows could be raised.

"To summarize, the ideal conditions would be as follows:

"1. The admission of thirty cubic feet per minute per passenger, of fresh air, and the carrying off of an equal amount of foul air, summer or winter.

"2. The fresh air so admitted must not be moving at a speed of more than three or four miles per hour in winter time.

"3. Fresh air admitted must be of a temperature in winter time of about seventy degrees Fahrenheit.

"4. Fresh air so admitted in winter time must have added to it a proper degree of moisture for the temperature at which it is admitted, according to the average humidity of the atmosphere, when at seventy degrees in the climate in which the cars are running.

"5. No system of winter ventilation can be successful unless means for the fresh air supply are provided independently of and separately from the windows and doors, as well as ventilators for carrying off the foul air.

"6. The fresh warm air should be distributed through as many openings and as low down as it can be conveniently arranged for, and the foul air should be carried off through as many small openings in the roof of the car as can conveniently be arranged for in winter.

"7. The ventilation should be entirely independent of the speed of the train, and act equally as well whether the car is standing or running.

"8. The ventilation should be so arranged that there will be a plenum or slight excess of pressure inside the car, so that all drafts will be outward instead of inward, and smoke and dust thus excluded.

"9. It is most desirable that double windows should be used, and so arranged that they can be locked fast in winter time, but readily opened in summer time.

"10. It is most desirable that an inside swinging door be used, so as to form an air lock or inside vestibule, to prevent the admission of cold air and dust every time the doors to the platforms are opened."

In arriving at these conclusions this committee had an investigation made under the supervision of an expert, and incorporated into their report something of his work, and the reasons for summarizing such ideal conditions as they have deemed necessary for perfect ventilation.

The committee add the following:

" It may be argued that there is no use for any such system of ventilation as this, that the present arrangements for the ventilation of passenger cars are good enough, and that nobody is any the worse for the present state of affairs. To show that this is an entirely wrong position to take, your committee had a number of tests made to show the degree of foulness of the air in sleeping cars, chair cars, and the day coaches, which tests have been made under the supervision of Mr. Wm. Forsyth, of the C., B. & Q., through the kindness of Mr. Rhodes. Pure air contains from three to four parts in ten thousand of carbonic acid, and at seventy degrees Fahrenheit an average condition of moisture would be from four or five grains of water per cubic foot.

" Dr. Angus Smith made a series of careful experiments in lead-lined, air-tight rooms for the purpose of seeing how long healthy peo-

ple could exist in an atmosphere having an excess of carbonic acid and moisture. As a result of his experiments, it was shown that it was very unwholesome to breathe an atmosphere having more than seven parts in ten thousand of carbonic acid, and that an atmosphere containing ten parts in ten thousand could not be endured by delicate people for long without injury, and that as the presence of an excess of carbonic acid is a direct indication of the presence of micro-organisms, commonly called disease germs, the injurious effects are not merely limited to the poisonous influence of carbonic acid, but that the danger of taking organic diseases was very largely increased. It was further shown that the senses are a very unreliable guide in judging of the foulness of the atmosphere, and that people who remain in a room in which the atmosphere had become gradually fouled would hardly notice its foulness, whereas outsiders suddenly coming in would be almost suffocated.

"Micro-organisms, or disease germs, are not given off to any harmful extent in the exhalations of healthy human beings, but they are given off in large numbers in the breath and spittle and evaporation from the skin of unhealthy persons. Especially is this the case with people suffering from tuberculosis, whooping cough, fevers, and so on ; and the disease germs grow and multiply very rapidly in a foul, moist atmosphere." To quote a prominent naval surgeon : 'The road is short, straight, and sure, from vomica and mucous patch to the receptive nidus in another's body. Who that has ever had forced on him an aerial feast of cabbage, onions, garlic, alcohol, tobacco, and gastric effluvia of an old debauch, can doubt that aqueous vapor can transport microscopic germs by the same route ?'"

A. L. Gihon, M. D. Address before the Pan-American Medical Congress, Washington, D. C., 1892 :

"Experiments made in Europe on animals which were inoculated with a preparation from the dust beaten out of the cushions of railroad cars in ordinary service, and which cars were not known to have carried sick people, showed that the most of these animals which were inoculated died of violent diseases. Few of them lived long enough to die of tuberculosis—none of them survived. As these micro-organisms are in the air and simply settle on the dust, it goes to show how very necessary indeed it is to carry off the foul air, and that, to quote a southern physician, 'The movement of vast masses of people annually from one section of this broad country

in search of those climatic influences modifying the course and progress of disease has become, from a sanitarian's standpoint, a great unsolved problem, namely, that of accomplishing the proper ventilation of cars by the introduction of pure air, free from dust, cinders, smoke, and so on, and at the same time the withdrawal of the impure air arising from the natural emanations of the body, as well as the more serious dangers accruing from chronic or contagious influences.

"All these devices which depend upon the speed of the train for their action, and where the air intakes surround the stovepipe, every time the car stops the ventilating process ceases and may be reversed; at slow speed it will be almost inoperative.

"Great improvement could, however, be made in the condition of the air in our crowded passenger cars if the trainmen were compelled to pay proper attention to the ventilators; a regular set of instructions should be furnished for their guidance, and division officers should be instructed to pass through the train at every opportunity and report cases where the ventilators have been neglected and the air overheated or foul, to the division superintendent for discipline. The men would then soon learn to attend to this part of their duty. Sleeping-car companies should have a code of rules printed and posted in the cars, and their porters and conductors should be made to observe such rules. One specially important thing is not to open the ventilators on the windward side of the train, otherwise, with drop-sash or trailing-sash ventilators, down drafts and cross drafts are unavoidable.

"The above extract from the report of the committee of the Master Car-Builders' Association, has much to commend it to our notice, as it comes from the best and most advanced class of practical mechanics. As a rule such men are not visionary, but reason from cause and effect, therefore their opinions are entitled to our consideration. I understand the report was written by Master Mechanic Sanderson, of the Norfolk & Western Railroad, of Virginia; yet when asked his personal opinion of its being practical to carry out such ideas, and use the average trainman to accomplish the work, remarks in rather a sarcastic manner,—'I wonder what the A. R. U. or any other railroad organization would say if we require our immaculate brakeman to do the chores in the railroad cars.'"[1]

[1] Mr. Sanderson, Master Mechanic of the N. & W. R. R., Roanoke, Virginia.

Another member of this committee, when asked if he believed it was possible to carry out such an ideal system as the report would allow the public to expect would be in use in a few years, says,— "I would say in answer to your first question, that I do not believe, as a railroad mechanic, that it will be possible to introduce and have accepted by railroad managers, the ideal conditions in a passenger car as expressed in the paper that was read on this subject. I do believe that if our trainmen were educated to make better use of our present facilities there would be less complaint. They have been relieved from year to year of their former duties, until they feel that all they need to do is to wear a uniform." [1]

Undoubtedly this is true, and we are all the more ready to believe its truth after having once asked one of these uniformed "Mikados" to ventilate the coach. That look of pity and condescension makes an impression never to be forgotten.

In support of that part of the report which I have quoted—relating to experiment on animals inoculated with a preparation of dust from passenger coaches—I will give an extract from the report of scientists who have recently concluded a series of experiments, under the direction of the Imperial Board of Health of Germany, as to the danger arising from the dust in railroad carriages. Their results show a decided risk involved in travelling under the present sanitary condition of the coaches.

"The dust was collected in each instance from a square metre of surface, and from forty-five compartments, representing twenty-one carriages. The inoculations were made upon guinea pigs. Many of them died of various diseases, and the rest were killed. Three only were found to have tuberculosis. The number of bacteria was largest in the fourth-class cars, and grew less with each rise in grade of the compartments. In the fourth-class cars the number was estimated at 12,624 per metre; in the third class, 5,481; in the second, 4,247; and in the first class, 2,583. On the seats and upper walls the numbers varied in the four classes from 2,646 to 29, while the roof was almost free. Though the third and fourth class carriages were the most infected, it was much easier to clean them, as they could be washed with hot water and soap, which could not be so vigorously applied to the better class carriages owing to the carpetings and upholstery." [2]

[1] Mr. West, Master Mechanic, N. Y., O. & W. R. R., Middletown, New York.
[2] Boston Medical and Surgical Journal.

The following letter, written on a trip to the Eastern states, says: "In our sleeper were three consumptives returning home to die, and that alone was depressing enough, but when, on getting up in the morning, one sees a considerable amount of dry, yellow sputum on one's vis-a-vis neighbor's bed linen, it is neither dainty nor reassuring. Morning cogitations, usually so pleasant, are apt to turn to the uncomfortable possibility of all the bedding in the car being subjected from time to time to the same infection, and being probably imperfectly washed or simply rinsed. Then it is impossible to clean the upholstering and carpeting without taking them out of the car, and an infected sleeper should be dangerous as the continual vibration keeps the dust and bacteria in the air. The space is also necessarily confined. Moreover, travellers are apt to catch cold from drafts and from sleeping close to the windows, thereby rendering the mucous membranes receptive to germ implantation.

"They order these things better in Europe; on some of the continental lines special coaches are provided for consumptives, and these are constructed with particular reference to ready cleansing and disinfection at the end of every trip, which, it should be noted, are much shorter than the 'runs' in this country, and the need of precautions is, therefore, and for so much, greater here than abroad." [1]

Dr. S. S. Herrick of San Francisco read a paper before the section on state medicine, at the meeting of the American Medical Association the present year, entitled, "Common Carriers as Disseminators of Contagion."

The writer dwelt particularly on the disposal of excretion in the people on inland waters and on railway coaches; believing that certain communicable diseases whose contagious properties are discharged from the alimentary canal are liable to reach the alimentary or respiratory tract of other persons if not intercepted or destroyed, and cholera, or typhoid fever, dysentery, intestinal tuberculosis, and other filth diseases are notably transmitted in this way.

He says: "Companies who provide meagre accommodation for passengers were properly censured, and should be held justly responsible if inadequate remedies were provided for their patrons."

Discussion by Drs. Ruggles and Cochran, Davisson and Stoner, all of whom were in accord with the opinions advanced by Dr. Herrick.

[1] Dr. Douglass W. Montgomery's letter to the Pacific Medical Journal.

These men, while enthusiastic supporters of preventive medicine, are gentlemen of sound judgment and are not carried away by any desire for notoriety. They believe the state and federal authorities should be ever on the alert to secure health for the individual, and that it is a duty which they owe to the people of the country to have a watchful care over the transportation company as well as the municipal lines governing health officers.

The *Ohio Medical Journal* says of the prevention of consumption:

"We do not deem it wise or prudent to invade the homes of tuberculous patients for the purpose of securing disinfection or the isolation of the sufferer. The instruction of the patient and his household by the physician, in the necessity of prophylactic measures, is at present sufficient; but we believe that a vast deal of good might be done by the exercise of strict sanitary measures against the contamination of rooms in hospitals and hotels, and the berths in sleeping cars. The most careful cleansing and disinfection of apartments occupied by consumptives should be required before other individuals are permitted to occupy them."

As we have said before in this report, cleanliness is one of the first principles of sanitation; whether it be a car, a house, an office, or a work-shop, the same principle holds good. In the construction of coaches for passenger use, something should be done to render the cleaning of the car a matter of small expense, for while in process of construction little things might be done that would add to their convenience, healthfulness, and cleanliness.

All passenger cars at the present time are constructed with water closets. The floor of such closets and a few inches of the side or mopboard should be covered with sheet copper, as an ordinary wooden floor will soon become filthy and can never be made clean. Odors will always be given off from an ordinary board floor whenever the temperature rises to that of summer heat; but if the floor be covered with sheet copper, hot water, dry steam, and chemicals may be used, leaving it without any absorbing surface to develop odors which may be latent in cold weather and very active on a hot summer day. If the designer and purchasing agent give attention to this in the first instance, the extra expense will be little or nothing, and will add very much to the efficiency of the car when the rules of sanitation are applied. As cars are now heated with steam direct from the engine, and as these pipes pass through water closets

for the purpose of protecting them against the cold weather, I can see no reason why taps may not be placed in those pipes in water closets and used for the purpose of cleaning them with hot steam; and it certainly could be but very little extra expense at the time of the construction of the car.

Dr. S. S. Herrick of San Francisco, Cal., in commenting upon a statute law of that state relating to maintenance or commitment of a nuisance, remarks:

"Obviously travellers should not be held responsible for committing a nuisance, so long as transportation companies provide no facilities for obviating the same; and legislation should be aimed directly at these companies, holding them responsible and requiring them to provide an adequate remedy.

"It is well understood that the law must not ordain what is impracticable, and equally plain that no serious difficulty and expense would be involved in abating such nuisances. No mechanical difficulty exists for a steamboat or railway coach to have its closet provided with a closed receptacle, having suitable means for deodorizing, disinfecting, and ventilating, and for discharging the contents into some proper place at short intervals. The details of a contrivance suited to such a purpose need not here be entered into. They belong to the inventor and mechanic, rather than to the sanitarian as such.

"Aside from considerations of health, it seems strange that respect for common decency has not abolished a practice in travel by land which would have brought a blush to common carriers in the good old days of slow coaches. While inventors and builders of palace cars are doing so much for the comfort and convenience of passengers in other respects, they adhere to a form of closet from which travellers must be excluded at the time when it would be most acceptable (halting at large stations) and which scatters filth and disease along the route. It is to be noted that cholera still lingers in Europe, and meanwhile we must not consider ourselves safe here within two weeks' travel by steam; while the other filth diseases, like the poor, are always with us.

"In my judgment the time has come for sanitarians to speak plainly and forcibly on the subject, and to demand of legislators a specific remedy which courts will be bound to apply to this class of offenses against health."

I understand several roads are making use of compressed air for the purpose of cleaning the draperies and plush covering of the seats, and that a plant for that purpose can be arranged to be effective with small expense. If this is true, and I see no reason why it is not, it should be generally used, for thorough cleaning with fresh air would be a most valuable disinfectant.

The vestibule train has become very popular, and no one doubts its efficiency as an easy riding coach, and insures perfect safety in going from car to car; but as an object lesson for the ventilation of cars it becomes a failure, inasmuch as it simply ventilates from one car to the other. Of course some air will pass into the vestibule section, but as that section has less width than the car itself, the pressure of the atmosphere extending to the car is much lessened than what it is upon the sides of the car itself, therefore but little air is forced in from that section of the construction, as the ventilating property of the vestibule is lost, and aside from that it may be overcome by the extra heat of lighting.

This leads one to consider the lighting of cars. Nearly every large road has been experimenting with the different methods of lighting coaches, and car companies like the Pullman and Wagner have done the same. Whether these experiments have been conducted in the light of sanitation, or as a question of expense, may be a matter of doubt, although it is probable that the safety of the car from destruction by fire has entered into the range of experiments. Gas and kerosene lighting while moderately expensive are not only dangerous by reason of their possibility of fire, but the extra heat which they occasion in the car in the summer time, proves a very serious obstacle to the comfort of the passengers. Then again, the destruction of oxygen by gas or kerosene lighting increases the amount of carbon dioxide in the atmosphere of the car, oftentimes to a dangerous extent, and in that way the health of the passengers is seriously threatened unless there is a large amount of fresh air introduced continuously.

That electric lighting is the ideal of the present time perhaps no one will dispute, unless the expense of the same is taken into account. So far as I can learn none of the devices for electric lighting have yet been brought down to the maximum of the manager's idea of expense, and therefore some other method will find favor until the public demand safety in lighting as well as in heating coaches.

It would not seem that it would be necessary in a report like this to make any allusions to the water supply of railway coaches, but the Medical Society of New York has adopted a report calling attention to the danger of drinking water from the average water-tank, as found in railway cars and other public places. Many cases of typhoid fever of mysterious origin, it is said, could be traced to the filthy water-tank, which has been filled with water and ice of doubtful purity, and re-filled from day to day without cleansing. Nevertheless, people must have something to drink in hot weather.

From this we may learn that the public are critical regarding the water supply. Some years since, Dr. Reed of Ohio, in investigating this matter, found that the water-tanks of ordinary coaches, and sometimes those of palace cars, were notoriously filthy. The water supply must of necessity depend largely on the character of the supply at given points along the line. When cars are cleansed and the water-tanks refilled, the ice supply depends upon the same conditions, but there can be no excuse for filthy tanks any more than in public or private houses. There are enough men employed about the trains to see that every tank is made clean day by day, and not to do so, and thereby endanger the health of the traveling public, becomes criminal.

In conclusion I have but little to add, as until the use of such devices for lighting, heating, and ventilating as we now have are fully understood and appreciated by the average trainman, who should be held responsible to his superior for the safe condition of his coach from a hygienic as well as a mechanical point of view, it is useless to assume that a more elaborate mechanism will find favor.

Nothing as yet approaching an automatic system in heating, lighting, or ventilating a car has been placed before the public, but as it is only a comparatively short period since automatic brakes and couplers have been placed upon the market, we may confidently look forward to the time when the public demand for hygienic improvements will evolve from the mind of man some plan or system to meet the emergencies of the occasion.

In order to do this effectually some one connected with the road would have to instruct the employé in the use of hygienic appliances, the same as is now necessary in the use of automatic brakes; and it would seem quite practical that all roads having a surgical department, should extend this work into the domain of hygiene, and

give the surgeon in chief authority to inspect, instruct, and to hold responsible such employés as are in any way concerned in maintaining a healthy condition of our trains. The surgeon more than any other person connected with railroads appreciates the hygienic condition of coach, stations, and grounds of our railroads, for in case of accident, he has much to contend with that is unknown to the physician and surgeon called to see those injured in ordinary accidents, and therefore will always be on the alert for all sanitary improvement.

However it may be brought about, the employé should be taught how to make the best use of all the devices in use to promote the sanitation of cars; and should be held responsible for any unsanitary conditions arising by reason of his negligence.

THE MILK SUPPLY OF A CITY.

In The Light of Modern Bacteriological Research.[1]

BY JOHN H. KELLOGG, M. D., BATTLE CREEK, MICH.

The milk supply of a city is, from a sanitary or public-health standpoint, a matter of the highest importance. In fact, of the many questions which come before the health officer or the sanitarian for consideration and study, none are of greater importance than those which pertain to the milk-supply, with the exception of those relating to air and water supply. I think the truth of this statement will not be questioned when it is remembered:

1. That milk in some form, as milk, butter, or cheese, is almost universally employed as an article of food among civilized people; and

2. That modern bacteriological study has shown that milk is one of the most common and efficient means by which disease germs may be communicated to the human body.

A number of common and very fatal maladies have been traced to the use of impure milk. Omitting maladies concerning which authorities are still somewhat in doubt, the following may be mentioned as those concerning which the fact of the communication by milk is well established: Typhoid fever, cholera infantum, and tuberculosis, or tubercular consumption—three of the most deadly diseases known. It is very probable, also, that diphtheria, scarlet fever, and several other maladies are communicated through the medium of milk.

But if no other maladies than the first three named are liable to

[1] Presented at a Sanitary Convention in Michigan, October, 1894.

be disseminated by the use of milk, there is ample reason for regarding this article of food with grave suspicion until its purity and innocuousness have been established.

An important reason for the consideration of this matter at the present time is the fact that within the last few years the developments of the science of bacteriology have rendered it necessary for us to carefully review and remodel many of the practices of modern life, and to attach great importance to matters which were formerly very lightly regarded.

The customs and environments into which we were born are those which were modeled upon a state of knowledge which did not include more than the smallest degree of enlightenment in relation to the germ causes of disease. The present knowledge concerning this subject is almost wholly the product of the scientific labors of the last quarter of a century, and a much shorter time has elapsed since the intensely practical value of a great number of long-known facts has been fully appreciated, even by students of science, and it now becomes the duty of sanitarians to bring these truths of practical importance, which have a most momentous bearing upon the conditions and customs of every-day life, home to the people in such a manner as to command their attention, and secure for the scientific facts presented a practical recognition.

Some twenty years ago the writer was exhibiting, through a microscope, to a lady of more than ordinary intelligence, some of the forms of microscopic life which occasionally infect food substances. When she learned that notwithstanding their formidable appearance through the microscope, their actual size was measured only in thousandths of an inch, she exclaimed with great emphasis, "I am not afraid of such little fellows as those are!" Unfortunately, size is not a measure of capacity for mischief. The farmer dreads much more the minute weevil or the microscopic smut which attacks the grain in his wheat fields, than the mole which burrows about its roots.

The eminent French scientist, Pasteur, has shown the very great power for mischief which resides in the infinitely small. Microscopic forms of life, animal and vegetable, are vastly more potent for mischief in this world, more destructive to human life, than any of the more obvious and better known causes of death and disease.

The accompanying illustrations show some of the more common

and interesting forms of microbes, representing, however, only a very few out of the many thousands of forms which have been studied.

Numerous observations during the last twenty-five years have shown that milk is a frequent means of communicating typhoid fever infection. Infection of milk has sometimes been traced to the adulteration of the milk with water which had been contaminated by excreta from typhoid-fever patients. In other cases the infection has occurred through the washing or rinsing of the milk cans or pails with infected water. There is, however, another source of infection which has been generally overlooked.

Several years ago when I was a member of the state board of health, at one of the quarterly meetings of the board I called attention to the possibility of the infection of milk with typhoid-fever germs through the excreta of cows; and in a paper read in 1888, before the Calhoun County Medical Society, upon the "Propagation of Typhoid Fever," I also called attention to this means of infection, which I believe to be one of the most common, although as yet rarely recognized. It is very well known that in a great number of cases of typhoid fever it is impossible to trace a direct relation to a preceding case. I believe that in a large proportion of these cases a thorough bacteriological study of the milk-supply would show this to be the source of infection.

It is generally held that cows are not subject to typhoid fever; nevertheless it is entirely probable that the capacious colon of the cow may serve as an excellent field for the development of typhoid-fever germs. While the digestive fluids of the stomach of a cow, as well as the gastric juice of the human stomach, are capable of destroying typhoid-fever germs under certain conditions, it is doubtless true in the case of a cow, as with human beings, that derangement of the digestive organs may so alter the character of the digestive fluids as to deprive them of their power to protect the body from the invasion of germs by digesting these destructive organisms. In other words, a cow which might not be able to transmit typhoid-fever germs while in a state of health, might while suffering from indigestion as the result of excessive feeding or the use of improper food, if infected, transmit through her alimentary canal the germs or their spores without destruction, thus infecting the milk.

The importance of this subject is at once recognized when we consider the facility with which the fecal matters of the cow become mixed with milk especially when cows are kept confined in a stable or small enclosure.

A few years ago, I attempted to settle this question by actual experiment. A calf was regularly fed, first with sterilized milk inoculated with a pure culture of Eberth's typhoid bacillus and later with sterilized milk inoculated with fecal matters from a typhoid fever patient. The fecal matters of the calf were regularly collected and sent to Professor Novy, of the University of Michigan, for bacteriological examination. The conclusions reached were not as definite as could be desired, but among the various bacteria isolated, Professor Novy found a number which resembled very closely the typhoid bacillus, and some which were apparently identical with the bacteria which Professor Vaughan has associated with typhoid fever. The experiment, while it did not actually prove that Eberth's bacillus may pass unchanged through the alimentary canal of the cow, did show that the fecal matters of a calf fed upon milk infected by the excreta of a typhoid fever patient, contain fever producing germs.

Recent bacteriological studies of the cause of typhoid fever have developed another fact which is of great practical interest in this connection.

Rodet and Roux, two eminent French investigators, as the result of extended investigations, have arrived at the conclusion that the so-called bacillus of Eberth is at least not the only cause of typhoid fever, but that in many cases the disease is due to another germ, the bacillus coli, a microbe which is constantly present in the colon of all mammals.

The author contributed a paper upon this subject to the proceedings of the American Public Health Association, at its annual meeting held at Mexico City, 1892, in which the facts bearing upon the question were presented at length. Among these facts may be mentioned the following:

1. The bacillus coli, found in the excreta of man and of all domestic animals, is capable of producing disease apparently identical with typhoid fever, and various forms of intestinal disease, as cholera morbus and cholerine.

2. The colon bacillus develops virulent properties outside the

body when deposited in vaults, in which it may live a long time; while Eberth's bacillus, the so-called bacillus of typhoid fever, quickly dies when exposed to the ordinary conditions found in vaults.

3. The colon bacillus obtained from excreta which has been deposited in vaults, produces toxines of much more deadly character than those of the bacillus obtained directly from the colon and those produced by Eberth's bacillus.

The immense importance of these facts will be recognized only when we take into consideration the facility with which cows may become infected with the excreta of human beings. Although no small care is taken to secure pure water supply for human beings, very little attention, indeed, is given to the water supply of animals, probably because no serious ill effects can often be traced directly to the use of impure water by animals, at least so far as the animals themselves are concerned, the fact being overlooked that while domestic animals may have acquired a certain immunity from the effects of impure water by constant exposure, they may be the vehicle for transmitting these impurities to human beings. But in the light of the facts presented, is it not clear that the same pains should be taken to provide a milch cow with pure water as is taken to secure a pure water supply for direct consumption by human beings?

It is safe to say that very few people, indeed, are fully acquainted with the dangers to life and health which lurk in the milk supply. Strange as this may appear, a still stranger observation is the fact that almost every savage nation on the face of the globe that makes use of milk in any form, has learned by experience to adopt measures of protection of a more or less effective character, while the English and Americans are about the only peoples who seem to have profited nothing by sad experience in this particular.

Among most savage tribes milk is seldom or never used. The teeming millions of China—a country which contains nearly one third of the entire population of the globe, are practically ignorant of this article of food. The high caste Hindoo regards milk as a loathsome and impure article of food, speaking of it with the greatest contempt as "cow juice," doubtless because of his observations of the deleterious effects of the use of milk in its raw state.

The savages of Central Africa make use of milk only after con-

verting it into a sort of kumyss by leaving it for some hours in a gourd specially prepared for the purpose. A portion of the ferment is always left behind in the gourd, so that a strong degree of acidity is developed in a few hours.

The half-civilized Tartars of Western Asia prepare milk in the same manner, as do also the Turks and the Armenians. The natives of Italy use milk from goats instead of that from cows, a custom which will be better appreciated when the fact is known that goats are not subject to that dread disease, tuberculosis, so common among cows. Even the German peasant scalds the milk as soon as it comes from the cow, and makes little use of the article except in the sour state, in which it is comparatively safe. The Irish peasant is equally fond of sour milk, and the same is true of the natives of Scandinavian countries.

The French dairywoman scalds the cream before she churns it, experience having shown her that by this method a superior quality of butter may be made, although the philosophy of sterilization is probably unknown to her.

American and English people, as before stated, stand almost alone in the recklessness with which they make use of raw milk as a food and as a beverage, and in the fact that they seem to have learned nothing by the experience of centuries in the use of an article which is certainly responsible for a prodigious annual addition to the mortality list.

Let us glance into the conditions which give origin to the microscopic dangers to life and health which lurk in milk.

There are various germs which change the color of milk, each producing a characteristic color. Other germs produce a peculiar flavor, as acid or bitter, still others change the consistency of the milk, producing either a thickened or coagulated condition, or rendering the milk thready or viscid in character. The following are a few of the more important examples of this sort:

Blue Milk.—The peculiar color of blue milk, not referring, of course, to milk which has been made blue by skimming, is due to the development of a peculiar coloring matter by the bacillus cyanogenus. The blue color does not appear, however, when the germ is planted in sterilized milk, but only by its growth in raw milk, as the development of the blue color requires the presence of lactic acid. A gray color is produced in sterilized milk.

Red Milk—The bacillus prodigiosus gives rise to a red color, which appears in patches upon the surface of the milk. Two species of red yeast produce a red or brownish color, which first appears at the surface of the milk, then gradually extends until the whole is colored.

The bacterium lactis erythrogenes colors the whey only.

A dozen different lactic-acid-producing germs are ordinarily found in milk, and there are a great number of other germs which produce sour milk.

Freudenreich has shown that the unusually spongy condition often found in cheese, giving the cheese a swollen or puffy appearance, is frequently due to germs furnished by the intestines of the cow. Some germs ferment casein but do not produce lactic acid, but a sort of rennet. The germs which produce lactic acid are killed at a temperature of 158 degrees F. The spores of some germs which ferment casein resist a temperature above the boiling point of water, sometimes even 248 degrees F.

There are many of these germs, ten or more species of which are well known, besides a large number included under the general term, "potato bacilli," which comprise a great variety of germs that grow upon the surface of the earth, and also a large number of bacilli which cause butyric acid fermentation.

Cheese owes its properties to the development of these various germs at the expense of the sugar of milk, the casein, and the fat which it contains.

Drs. Schaffer and Bondzynski showed many years ago that cheese made from cooked milk does not mature.

Adametz has shown that the addition of thymol and other germicides to milk in making cheese prevents the maturing of the cheese.

Yeast and Molds—A variety of yeasts grow in milk. The characteristic action of yeast in milk is the production of lactic acid and alcohol. Some of these yeasts coagulate milk, others do not. Kumyss is one of the familiar products of the action of yeast upon milk. Kephir is a variety of kumyss produced by a peculiar yeast found in the so-called Kephir grain.

The red yeast already referred to, sometimes develops in cheese.

A white mold, *oidium lactis*, sometimes forms upon the surface of milk as well as upon other substances.

Green mold also sometimes attacks milk. It is, in fact, the prin-

cipal agent in the production of the famous Roquefort cheese. Brie cheese owes its peculiar properties to mold. In the manufacture of these varieties of cheese, the development of mold is promoted for the purpose of securing the peculiar flavors characteristic of these molds when grown in milk.

Yellow Milk—Bacillus synxanthus produces a disease which coagulates the milk, then a rennet which dissolves the casein and colors it yellow.

Bitter Milk—There are many different germs which produce bitterness in milk. They are most likely to occur in milk which has been boiled and then allowed to stand for a long time. In raw milk they are overwhelmed by other germs, and do not develop ; but the spores survive cooking and develop later. There are a few germs capable of causing bitter milk which resist the action of other germs and grow in raw milk.

Thready or Viscid Milk—More than a dozen different germs have been described which produce a thready or viscid condition of the milk. It is a singular fact that this condition of the milk is promoted as the basis of the manufacture of Edam cheese. Conserves of thready milk are also made in Norway, where pains are taken to produce a viscid condition of the milk in the manufacture of a peculiar kind of preserved milk known as Tattemyelk. The condition is produced by adding small leaves of a species of grass, the *pinguicula vulgaris* ; sometimes instead, the same grass is fed to the cows, which suggests at once the manner in which the milk may become infected. The cows eat the grass, the mouth and nose of the cow become infected, they transfer the germs to the udder, and from the udder they readily find their way to the milk pail.

Disease-Producing Germs—Much more important from a sanitary point of view than the various yeasts, molds, and color-producing germs which have just been mentioned, are the pathological microbes, or disease-producing germs, many of which grow with great facility in milk. Some of the diseases arising from these germs, as cholera and typhoid fever, have already been referred to.

It has been shown that cholera germs grow with less facility in raw milk than in cooked milk, lactic acid interfering with the development of the cholera germ, so that sour milk may be, under certain conditions, safer as an article of diet than sweet milk, if the latter is uncooked.

Certain forms of influenza have been proven by Freudenreich, the director of the Bacteriological Laboratory of Berne, Switzerland, to be transmitted by means of milk. This was found to be especially true of the peripneumonia of hogs.

Dr. Hart, an eminent English sanitarian, records fourteen epidemics of scarlet fever and seven of diphtheria, originating in England in which the contagion was disseminated through the medium of milk.

Typhoid fever has been found to originate in the use of infected milk in a great number of cases, as has already been shown. The typhoid fever germs grow with great facility in milk.

One of the greatest of all the dangers connected with the transmission of germs by means of milk, is encountered in the fact that the germs of tuberculosis thrive in milk, and retain their vitality for many weeks even, in butter and cheese. The bacillus tuberculosis, the contagious element of the disease commonly known as consumption, is probably more frequently to be found in milk than any other dangerous germ.

Hirschberger, an eminent German authority, found ten per cent of the cows in the vicinity of large cities affected by tuberculosis. Cows kept for dairy purposes in the immediate vicinity of cities are generally subjected to much more unhealthful conditions than those in the country. The milk of half the cows examined, or five per cent of the entire number, was found to contain the tubercle bacillus. As the milk from the different cows was mixed together, it is probable that nearly the entire milk supply of the cities supplied by the cows examined, was infected with consumption germs.

An investigation of this subject made in Copenhagen a few years ago, showed tubercle bacilli in one seventh of all the specimens of milk examined.

Brouardel, an eminent French authority, found five cases of tuberculosis in a small boarding school of fourteen girls. The disease was traced to the use of the milk of a tuberculous cow.

Gasperini found tubercular germs alive in butter at the end of 120 days.

Gautier found them alive in cheese at the end of thirty-five days.

The importance of this subject can only be appreciated when bearing in mind the extent and increasing prevalence of tuberculosis in human beings.

The fact that in older populations, like those of England and New England, the proportion of deaths from consumption to deaths from all other causes rises as high as twenty or thirty per cent, while in the newer communities of the west the proportion falls to eight or ten per cent., is an evidence that conditions exist in intimate connection with life in a civilized community which favor the development of this dead disease. The revelations of the post-mortem rooms connected with the metropolitan hospitals of this and other countries, have shown that sixty per cent. of hospital patients who die have suffered at some time in their lives from infection by the bacillus tuberculosis, as evidenced by the characteristic lesions which have been left behind. The great majority have, of course, recovered from the disease—thanks to favorable conditions and the natural recuperative powers of the body—but this fact is, nevertheless, evidence that infection of the human race in civilized communities with the bacillus tuberculosis, has come to be, at the present time, exceedingly common. Indeed, it may be said that such infection threatens to become universal.

It is an inevitable conclusion, from these facts, that the causes of tubercular infection, whatever they may be, must be widespread and intimately connected with the conditions of civilized life. That tuberculosis is an infectious malady is a question which we shall not undertake to discuss, as the purpose of this paper is only to bring before this convention this highly important question for the purpose of inviting a discussion of the possible relations which exist between this malady and the use of cow's milk.

That consumption is in some way connected with the cow is thus very able argued by Dr. F. R. Brush, who calls the cow "the wet nurse of consumption :"

" Scrofulous females in the human race usually secrete an abundance of milk, because in scrofula there is an unusual tendency to glandular enlargement and activity. As the mammary is the highest type of glandular structure, it is stimulated to increased action. A scrofulous cow is usually the largest milker, and the closest kind of consanguinity has been practised by cattle breeders, with the object of producing a scrofulous animal, not because she is scrofulous, but because the particular form she represents are the largest yielders of milk. We find, too, that consanguinous breeding has been alleged as one of the causes of tuberculosis in the human race, where it can

never be conducted with so close and intimate blood relations as in the dairy animals.

" The absence of phthisis in high, dry mountainous regions has been accounted for by reason of the altitude and absence of moisture in the atmosphere, but here occurs a somewhat curious fact ; namely, that the cow does not thrive in the high, dry mountainous districts, but on the low, swampy, moist region where the succulent and moist grasses grow, is the place where the cow flourishes, and it is in these regions also that tuberculosis abounds in both bovine and human subjects."

That tuberculosis may be communicated through the milk of tuberculous animals, at least under certain circumstances, is strongly suggested, if not absolutely proven, by the disproportionate frequency with which enteric consumption occurs in young children. A case recently reported in medical journals illustrates very clearly the possibility of infection by tuberculosis through the alimentary canal. Four infants were cared for by a tuberculous nurse who fed the little ones with a spoon, and was in the habit of tasting the milk herself to test its temperature before each feeding. All four of these children suffered and died from enteric consumption—a very clear case of infection.

In a recent paper read before the New York Veterinarian Medical Society, January 9, 1894, published in the *Journal of Comparative Medicine*, Dr. James Law, of Cornell University, states as follows : " In the case of calves sucking phthisical cows, they have done badly and proved unthrifty, though they took the whole of the milk furnished by their respective nurses, and they have thriven better when weaned and put upon solid food alone. I have followed some such calves until they grew up and were slaughtered, and have made post-mortem examinations and found them bearing old calcified tubercles, pointing back to the time when they sucked the infected and poisonous milk."

Bollinger showed that a pure culture of tubercle bacilli gives positive results in inoculation experiments in a dilution of one to four million parts, thus showing that milk may be infectious when the bacilli are so scanty as to be undiscoverable with the microscope without an extremely exhaustive examination. This shows that inoculation is really the only method of determining the infectious or non-infectious character of the milk.

Hirschberger made inoculation experiments on guinea-pigs with samples of milk obtained from twenty tuberculous cows. He obtained positive results in 80 per cent. of his experiments, in cases in which the disease was far advanced, and in 35 per cent. in cases in which the tuberculous process was confined to the lungs. The milk was found to be more infectious at certain times than at other times, the increased infectiousness being due to the presence in the milk of spores which had been set free from some focus of the tuberculous disease and absorbed into the lymph channels, and thus carried to the mammary gland and secreted with the milk. A most painstaking microscopical examination made of the milk, even in the successful cases, failed to reveal the presence of the tubercle bacilli except in a single case, showing the unreliability of this mode of examination.

The following case is cited by Hirschberger as a very convincing illustration of the infectious character of milk from tuberculous animals : " The owner of a very valuable herd of cattle," says the author, " finding that a very large proportion of them were tuberculous,—so large a proportion, indeed, as strongly to suggest infection by association in the sheds—withdrew his milk from the market, and used it, unfortunately without boiling it, for fattening his pigs, of which he has a large number, and on which he prides himself not less than on his cows. The result has been that the pigs have, almost without exception, been affected with the disease to an extent that has necessitated the slaughter of the whole stock."

An important fact which seems to have been overlooked until recently, is that to which Professor Law has called attention in the paper above referred to. Since Professor Koch's famous experiments with tuberculin, which created so profound a sensation in the medical world a few years ago,it has been well known to physicians that the substance known as tuberculin—the toxic product of the tubercle bacilli—is capable of producing most profound effects when introduced into the system of a human being or an animal in the slightest degree affected by tuberculosis. It is the paralyzing influence of this poison upon the tissue elements which gives rise to the necrosis of tissue, and the formation of cavities in the lungs and other organs which are the seat of tubercular deposits.

Having been one of the first in this country to obtain a supply of tuberculin, which I did through the kindness of the American

minister at Berlin, I have had an opportunity to study its effects upon human beings, and, with others, have been greatly astonished to see the profound effects produced by the most minute doses, so small a dose as even the fraction of a milligram—perhaps one five-hundredth of a grain—being capable of producing positive systemic effects. I have known of the injection of two or three minims of tuberculin to give rise to an elevation of two degrees of temperature in a perfectly healthy cow, and have seen a temperature of 105 degrees in a human being—an elevation of six and one half degrees above the normal—result from the use of one or two milligrams of tuberculin. A poison which is thus active in such minute doses must be very potent indeed.

In a tuberculous animal tuberculin is being constantly produced in quantities exactly proportionate to the number of bacilli actively present. The rapid elimination of the poison through the kidneys and other excretory organs saves the patient from profound toxic effects, although the steady wasting of the tissues which has given rise to the significant name of "consumption," the rise of temperature, the night sweats, and the diarrhœa are all evidences of continued toxæmia. When, however, the amount of this extremely powerful poison, which is constantly present in the system, and to which the body accommodates itself to a certain extent, is increased by the hypodermic injection of even a small quantity, the tolerance of the system which had been gradually acquired is overborne, and the toxic effect is manifested in what is termed a reaction. These effects can be easily watched, if the tubercular lesion is superficial, as in lupus, and are manifested in a marked change in color and a swelling up, and finally in death and sloughing of the affected parts. If the affected tissues happen to be upon the surface of the body, or if in the lung, located close to a large air tube, suppuration of the diseased tissues and a complete clearing away by the sloughing may occur, and all of the affecting microbes may be carried away with the sloughing mass. Thus, recovery may result. But if the tubercular foci are not thus favorably situated, but instead are located in the depths of the tissues, as in the centre of some dense organ, then the effect of the tuberculin may be to break down the wall of resistance which nature has thrown up around the tubercular mass, and thus set free the myriads of active microbes which had previously been restricted to a small area, and so set up a gen-

eral infection of the whole body, converting a local and comparatively harmless lesion into a general infection and hopeless disease. It was the possibility of such results as these which led to the abandonment of the use of tuberculin in the treatment of consumption by the great number of enthusiastic physicians, who, like myself, seized eagerly upon the much-praised panacea for the most destructive of all human maladies.

From the above briefly stated facts, it is apparent that the evil results which follow tuberculous infection are not wholly due to the bacillus itself, but are also attributable to the toxines produced by it.

Now, the important fact to which Law has called attention is this,—namely, that even though the milk of a tuberculous animal may be proved to be free from tubercle bacilli, and hence not capable of giving rise to tubercular infection, or if the infected milk shall have been sterilized so that it no longer contains living bacilli, still these animal products are, nevertheless, capable of producing most potent mischief through the toxic products of the bacilli which they contain.

In the blood and lymph of every animal suffering from tuberculosis there must be circulating a variable amount of the extremely toxic substance called tuberculin. The milk, as well as the juices of the flesh, of such animals must always contain a certain proportion of this poison. It is thus apparent that whoever makes use of the flesh or milk of such an animal is thereby introducing into his system more or less of this extremely active and dangerous poison. That the effects of poisoning through this source are not everywhere recognized is no evidence that such effects are not produced. As Professor Law very well says, "It is the scrutiny, and not the facts, that is wanting." We have not been looking for facts from this source, and so have not seen them. But that effects must be produced there seems to be little, if any, room to doubt. Professor Law says,—"In my experience with tuberculous cows, cases have come to my knowledge in which invalids drinking the milk of such animals have suffered very obviously, and have improved after such milk has been withheld." The same fact has been noted by Professor Law in relation to calves, as stated in the quotation previously made.

Dr. A. N. Bell, editor of the *Sanitarian*, a number of years ago

undertook a research in relation to the influence of the milk of tuberculous cows upon infants. He found that a great number of infants supplied with milk from a certain dairy were sickly, puny, and in every way unthrifty. Investigation showed that a large number of the cows in this dairy were tuberculous. This observation agrees entirely with that made by Professor Law. I have made no personal observation of this sort, but a laboratory observation which I made a year ago seems to have sufficient bearing upon this question to be worth relating. In the course of a series of experiments for the purpose of studying, by the method of Bouchard, the relation of the toxicity of urine to various maladies, I made use of the urine furnished by a consumptive patient. The experiment consisted in the injection of carefully filtered and neutralized urine into one of the veins of the ear of a rabbit, which had previously been carefully weighed, its temperature taken, etc. A careful note was taken of the amount of urine required to produce death, and of all the symptoms. One of the most marked symptoms was found to be a rise of temperature—the temperature of the rabbit increased from three degrees to five degrees F. within five minutes from the time the injection was begun. The temperature was taken per rectum both before and after the intravenous injection, and the greatest care was taken to secure the highest degree of accuracy possible.

This observation is not anomalous, as similar facts have been observed in the injection of the urine of patients suffering from typhoid fever and other febrile maladies.

The fever of a consumptive is due to the presence of tuberculin in the circulation. The fever in the rabbit was due to the presence of tuberculin in circulation which had been excreted by the consumptive through his kidneys. It will be admitted that the milk of a tuberculous cow must contain a much smaller proportion of tuberculin than does the urine of the same animal; nevertheless, since the fluid portion of the milk is made up from the plasma of the animal's blood, it is evident that it must contain at least as large a proportion of this extremely soluble and poisonous product as is found in the animal's blood—perhaps even a larger quantity,—the readiness with which toxic substances of various sorts are excreted by the mammary glands being too common an observation to require more than mention.

This matter is certainly one of most profound importance. Tuberculin is not destroyed by sterilization nor by any culinary process. If present in the animal when alive, it will certainly be present in its flesh and milk, and those who make use of these infected substances as food, must run an enormous risk of injury. From the results of the post-mortem study to which I have already referred, and by which we have learned that in large cities, at least, about one half of the poor population are more or less affected by tuberculosis at some time in their lives, it is evident that an equal number of those who make use of the flesh or milk of tuberculous animals are likely to suffer the greatest injury thereby, through the intensification of the tubercular process or the diffusion of the circumscribed disease.

Since sterilization affords no certain protection from this danger, it is evident that inspection is the only precaution to which positive value can be attached, and this inspection must be thoroughgoing; it must include not only an ocular inspection of animals, but the injection of tuberculin.

So thoroughly impressed was I with the importance of this method that, after reading Professor Law's paper, I immediately proceeded to secure a careful investigation of each one of the 112 animals which furnish milk for the hospital and sanitarium of which I have charge. The astonishing thing to me is that I should so long have remained apathetic to a question of so great importance. It has, indeed, many times occurred to me that the milk of tuberculous animals must contain more or less tuberculin, but I had never given the matter sufficient thought to become impressed with its importance. Prof. Law has certainly become a public benefactor in presenting this subject so forcibly and lucidly, and it is to be hoped that live stock commissioners and veterinaries everywhere will recognize the importance of this phase of the question, which has hitherto been utterly neglected.

There is still another feature of this question to which, it seems to me, sufficient importance has not been attached, namely, the infection of human beings with tuberculosis by contact with tubercular animals, aside from the use of their flesh or milk as food. That tuberculosis is usually contracted by the reception of germs into the air passages is a point upon which there will probably be no controversy. The reception of the microbes in the form of dust, by

respiration, is unquestionably the most frequent form of contagion. A case which once came under my observation may be worthy of mention, although it seems hardly necessary to add to the vast amount of positive evidence which has accumulated within the last ten years. On inquiring the history of the case of a lady suffering from tuberculosis, who came under my care some five years ago, I was informed that her husband had died of the disease some two years previous. During the last two months of his life he was confined to his bed and expectorated enormous quantities. The family resided upon a Nebraska farm, and were entirely ignorant of the nature of the disease, not being instructed by their physician. The housewife, being busy with her household duties, and burdened with the care of several small children in addition to that of her invalid husband, often neglected to wash the clothes upon which he expectorated. She simply dried them and rubbed them up in her hands to restore pliability, thus reducing the infectious matter to powdered form and diffusing it through the atmosphere of the room in the most effective manner possible. She naturally contracted the disease herself, and when seen by me was in the very last stages, and died a few weeks later.

The *British Medical Journal* recently reported the following case, which indicates the tenacity of life in the bacillus of tuberculosis under ordinary conditions:

"A family of nine moved into a house occupied ten years previously by two tuberculous patients. A short time after, although the whole family had been in splendid health, three among them showed symptoms of tuberculosis. They used the same bedroom as the former tenants. Dr. Ducor had pieces of wall paper examined and dust from the ceiling and walls was also examined. In both cases the tubercle bacillus was found. The former occupants had been uncleanly in their habits; the sputa had dried on the walls, and the bacillus, as M. Vignal has shown, retained its vitality, and was not destroyed by attempted disinfection."

A recent number of the *Journal des Connaissances Medicales* reports some cases of tuberculosis which were contracted by the new occupants of an apartment contaminated by the expectorated matters of a tuberculous patient who had died there two years before.

Sawisky, who has investigated the length of time that dried sputum retains these infectious properties, reports that virulence

was retained for two and one half months. He found this to be true even when the sputum was exposed to the sunlight, the destructive effect of sunlight upon microbes, which is well known, being only observed in the bacillus tuberculosis when the sputum was spread out in very thin layers.

Flick has prepared a map of the fifth ward in the city of Philadelphia which locates every house in which tuberculosis has occurred within the last twenty-five years, and shows that the disease has chiefly prevailed in a series of infected houses which constitute less than one third of all the houses in the ward, but have furnished more than half the deaths. It was also observed that a large percentage of all the cases of mesenteric tuberculosis in children occurred in their houses.

Another fact in addition to those which have been cited, showing the danger connected with infected apartments, is the extreme liability to disease of nurses who care for consumptive patients. Cornet showed from statistics of 87,000 nurses, that 63 out of every 100 of them died of tuberculosis, the proportion of deaths from tuberculosis up to fifty years being 75 per cent. Is it not reasonable to suppose that the dairyman who cares for a cow suffering from tuberculosis is at least equally as liable to contract the disease from the cow?

A point of importance to which we wish to call special attention is the fact that the sputum of tuberculous cattle and the apartments occupied by such cattle are as dangerous a source of infection, and more so, than the sputum of human beings, or the apartments occupied by them.

Dr. Bell noted, in his observations previously referred to, that healthy cattle placed in stalls which had previously been occupied by tuberculous animals, soon became infected with the same disease. Doubtless the source of infection among animals is the same as that which prevails most frequently among human beings, namely, the inhalation of the infected matter reduced to powder and floating in the air as dust.

It is doubtless true that contagion from animal to man is much more common than from man to animal, and yet that contagion may occur from animal to man cannot be doubted. A case is reported in which a flock of chickens became almost wholly tuberculous through eating the expectorated matters of a consumptive

young man who had charge of them and fed them, spending considerable time with them in the yard.

Hoffman has shown that flies may take up the tubercle bacilli from infected sputum, and discharge them alive and active with their excreta. A number of flies fed upon infected sputum died after a few days. Whether death was due to the growth of the microbe or to the toxic effect of the tuberclin absorbed was not shown by the experiment. It is known that the bacilli of leprosy are communicated by flies alighting upon a raw surface, and I deem it quite possible that infection of the skin, resulting in lupus, or of the lymphatic glands, producing scrofulous enlargement, may occur in this way.

A curious fact to which attention has been called, is that earthworms may receive into their bodies and retain there in a virulent condition the tubercle bacilli for many months. These bacilli may be deposited upon the surface of the earth with the excreta of the worm, become reduced to powder, raised in the air by some passing breeze, and thus find their way to human lungs. In this way the expectorated matter of cattle in pastures may find access to human beings.

In licking herself a cow suffering from tuberculosis may soil the hair about the udder or flanks with infected saliva, which, after drying, may be rubbed off during the act of milking and find its way into the milk. This may be a source of infection of milk, in cases in which, when taken with special precautions directly from the udder, the milk gives no evidence of infection.

Numerous other ways in which tubercle bacilli may be communicated to human beings from an affected animal may be easily conceived. The extent to which tuberculosis prevails among cows and other domestic animals is a subject concerning which we are at present considerably in the dark, since no sufficient, thoroughgoing investigation has been made to give us definite and accurate information. The superficial examinations which are made in connection with slaughter houses and packing establishments have shown a percentage of infected animals as high as 2 or 3 per cent.

Jorissenne, who claims for the veterinary surgeons of Belgium the honor of first calling attention to the danger in the use of the milk of tuberculous cows, states that out of every hundred cows four are tuberculous.

It is evident that safety from this source of danger to human life can be found only in a thorough inspection, not only of all cows and cattle furnishing food for human consumption, but of all domestic animals which are subject to this disease. The astonishing thing is that there should be so little interest in relation to this question. Tuberculosis is a disease which is much more rapidly fatal in its effects, much more actively contagious, than the much dreaded leprosy of India and the South Sea Islands, and is almost equally fatal when it has obtained a foothold in the human system.

The results of the inquiry made in India by the leprosy commission recently appointed by the British government, show that leprosy is not propagated by direct contagion from one human being to another, but through the air, doubtless by means of fine particles of dust carrying the germs of the disease. Leprosy germs were found in the dust gathered from a ground surface over which a leper had walked. Consumption also is doubtless most frequently communicated through the medium of dust.

Another interesting fact is found in the pathological resemblance of the two specific microbes characteristic of these diseases. The appearance of the two germs is almost identical. Indeed, their resemblance is so close that a bacteriologist of some note has recently come forward with the assertion that they are absolutely identical; in other words, that the disease commonly known as consumption, or tuberculosis, is only another form of the disease commonly known as leprosy. Certain it is, that consumption is a disease much more to be dreaded than leprosy. A malady which destroys more than one sixth of all who die in this country must have some cause which is very general, very potent, and withal very subtile. It is not to be wondered at that there has been much discussion with reference to the nature of this cause. If it had been very easily discernible, it would long ago have been fully recognized and would have been suppressed.

It is the firm belief of the writer, however, that the wonderful development in bacteriology and physiological chemistry which the last decade has witnessed, has brought to us a solution of this question, and that it only remains for sanitarians to grapple with it resolutely and to urge upon national, state, and municipal authorities everywhere the duty of undertaking a thoroughgoing and unrelenting crusade against a disease which is annually responsi-

ble for more deaths than war, pestilence, and famine combined; a disease which has been very aptly demonstrated "The Great White Plague," and which is, in the light of modern researches, as proper a subject for public health measures, restriction, quarantine, and isolation as small-pox, yellow fever, or cholera.

The boards of health of several states have considered the matter of sufficient importance to send out in great numbers, pamphlets warning the public with reference to the necessity of destroying the sputum of consumptives and carefully disinfecting the premises which have been occupied by them. Similar steps have been taken in England. The health officer of the city of Manchester, England, advertises himself as ready to disinfect, free of expense to the owner, apartments which have been occupied by consumptives.

More than two years ago the government of Prussia took cognizance of the importance of this question, and issued an admirable publication, including a series of rules relating to the prevention of this disease. Tubercular midwives are forbidden to practise their profession. Town corporations are recommended to provide disinfecting apparatus for the disinfecting of infected houses and clothing. It is certainly high time that attention should be given to two of the most important causes of this disease—the use of infected flesh and milk and the contact of human beings with infected animals. Consumption should be classed with other contagious diseases, and treated in a manner consistent with known facts relating to its contagiousness. State and municipal authorities should require a careful inspection of the meat and milk supplies of all public institutions.

I considered it my duty to make an investigation of this sort in relation to the milk supply of the institution of which I have charge. The investigation was made under the supervision of the state veterinarian of Michigan, who employed tuberculin furnished by the department of agriculture in Washington, in accordance with the rules laid down by the department for such investigations. Although not a single case of tuberculosis was found among the one hundred and twelve cows examined, I shall continue the application of the test, and hereafter will admit to the establishment no milk which is not furnished by animals which have been subjected to the tuberculin test. The fact that occasionally instances are found in which large herds of cattle are entirely free from tubercu-

losis, renders all the more important a thorough investigation of this matter, as it emphasizes the contagious character of the malady and the possibility of the complete eradication of the disease.

In the discussion of a paper which I presented at the National Live Stock Sanitary Convention held at Washington, D. C., last June, from which a part of this paper is borrowed, Dr. Salmon called attention to the fact that the old idea that only 3 or 4 per cent. of cattle about Washington were infected by tuberculosis, has been proven to be incorrect, since an examination of a herd of 100 head has shown that 80 of the cattle were infected by the disease. Physical examination alone is not sufficient to demonstrate the presence or absence of tuberculosis. The tuberculin test is the only reliable means of discovering the disease when it is in the incipient stage. Even this sometimes fails on the first test, but a second test is pretty certain to succeed. The test is easily made.

The herd is kept in over night, and in the morning the temperatures are taken per receum. This is continued every two hours for twelve hours. At the end of the twelve hours, 30 m. (2 c. c.) of Koch's tuberculin is injected hypodermically, and the cattle are allowed to rest over night. The next morning the temperatures are again taken, and continued to be taken every two hours during the day(12.) A cow's temperature is about 101 degrees F., and if any have tuberculosis, the temperature will rise to 105 or 106 degrees F. The cattle are well fed and cared for during this time, but kept quiet.

This method has been so thoroughly tested that it is now employed by the State Board of Health of New York, in which state the matter is receiving great attention. The National Department of Agriculture at Washington is also taking active measures in reference to this matter and supplies to state veterinarians, free of charge, the material necessary for making the tuberculin test.

It is the candid opinion of the writer that if this subject were appreciated as it should be, and such measures adopted as might be adopted, and such as would be adopted if the people fully appreciated the gravity of the subject, tuberculosis, not only in cows, but in human beings as well, might be practically stamped out of existence within a generation.

If this could be accomplished, it would result in the saving of a vastly greater number of lives than have been saved by quarantine

and vaccination against cholera, yellow fever, and small-pox. Co-operation on the part of national, state, and municipal governments in making investigations of this sort obligatory, and furnishing facilities for such investigations, would, I believe, result in the saving of many thousand lives annually, and might, within a few years, almost wholly eradicate a very important and rapidly increasing cause of tuberculosis in human beings.

The conditions under which milk is usually produced in civilized communities are such as to insure its contamination. The udder and other portions of the body of the cow become smeared with her excreta, or that of other animals, and this infectious material is in turn rubbed off by the contact of the hands and clothing, or the switching of the animal's tail, and falls into the milk during the process of milking. The amount of foreign material of this sort which finds its way into the milk, depends, of course, upon the care of the dairyman. Milk from cows in pasture is comparatively free from materials of this sort, although by no means wholly so, while milk from cows kept in stalls is certain to contain a considerable quantity of stable litter.

The average dairyman unwittingly imitates a heathen custom. The Hindoo, as already stated, makes no use of milk as an article of food, but often keeps cows for the purpose of supplying milk to his English and Mohammedan neighbors. The rules of his religion, however, require him to placate his deity for robbing the cow by performing certain religious rites, one of which consists in adding cow dung to the milk.

Incredible as this statement may appear, I am certain it is authentic, as the statement was made to me by missionaries who had spent many years in India and were personally knowing to the facts.

I was also informed that a great objection to the use of milk in India is the fact that it is invariably found to possess a strong flavor of cow dung.

This objection not infrequently applies with a considerable degree of force to United States milk.

When it is considered that in the cow's excreta are to be found germs of many varieties, form the ordinary germs of putrefaction to the most deadly pathogenic or disease producing microbes, and requiring only a favorable soil in which to develop to enable them to manifest their deadly properties, it will be seen that no small

importance attaches to what is generally considered an insignificant or unimportant matter.

The housewife is ordinarily contented with straining the milk through a wire-cloth strainer, or, if exceptionally fastidious, she may employ a strainer of cloth. The universal practice of straining milk in some fashion is a recognition of the source of contamination which has been mentioned. But it probably is not generally known, at least not considered, that this mode of purification removes from the milk only the coarser masses such as are readily visible to the eye.

A microscopic examination of the milk obtained from a cow in the ordinary manner shows that after the most careful straining it still contains a large number of germs and germ spores, which at the end of a few hours are found to have increased with such rapidity that thousands are to be found in every drop of milk, and at the end of twelve hours the number is often increased to millions.

It is to these germs that the souring and decomposition of milk are due, and also the various characteristic changes which take place in cheese, and other less usual phenomena connected with milk.

Pasteur, Freudenreich, and many other eminent bacteriologists have made a careful study of the different germs found in milk and with most interesting results.

Investigations conducted a few years ago at the experiment station of the State Board of Health of Connecticut resulted in the discovery of more than thirty different kinds of germs in milk.

In conclusion I desire to say one word with reference to proper methods in the production, care, handling, and use of milk.

1. Cows must be fed upon proper food. Cows fed upon garbage soon suffer from indigestion, and the milk is thereby deteriorated in quality, not only by the poisonous products of decomposition communicated by the garbage through the cow to the milk, but also by the products of indigestion in the cow, which are equally deleterious in character, and which find their way into the milk from absorption and secretion by way of the mammary gland.

2. A cow must be supplied with an abundance of pure water. The same care should be taken to provide as pure water for a milch cow as for a human being.

3. The milch cow should receive the most scrupulous care as

regards cleanliness. When a wet-nurse is to be selected for a young child, the nurse is usually required to bring a certificate from a physician that she is in sound health. A wet-nurse suffering from a skin disease, serious indigestion, decayed teeth, bad breath, or a constitutional taint of any sort, or who is of untidy habits, is at once rejected.

It is very remarkable indeed that we have been so slow in recognizing the fact that a cow is a wet-nurse for the entire family—the father, mother, older brothers and sisters, as well as the infant members of the family. The cow should be kept indoors only during the coldest weather, and should have daily exercise out of doors in all weathers. The stable should be airy and well ventilated, thoroughly clean and free from stable odors; the cow herself should be kept thoroughly clean, and unless allowed an opportunity to groom herself in a natural fashion, should be as regularly and thoroughly curried as a carriage horse. Before milking, all the parts liable to contribute anything to the milk pail should be thoroughly clean.

4. The dairyman himself should be neat and tidy in his work. The vessels which receive the milk should be protected, so far as possible, from stable dust. In the investigation conducted at the Connecticut experiment station, among the germs found in the milk was one species which produced the familiar characteristic odor of the cow-pen, another gave that of a chicken-coop, another produced the odor of the pig-sty. The odors produced by the other germs were equally characteristic of their origin.

To avoid the reception of germs and the absorption of poisonous volatile substances produced by the various germs which thrive in the vicinity of the stables, the milk should not only be protected while in the vicinity of the milking stable, but should be removed as quickly as possible.

5. The milk should be quickly cooled after milking; not that there is anything injurious in the animal heat in the milk, but heat favors the development of the germs which, in spite of all ordinary precautions, are certain to be present in small numbers at least, while cold discourages the development of these organisms. A certain period of incubation takes place after the collection of the milk from the cow, varying in length from an hour or two to several hours, according to the temperature of the milk.

Experiments made in Germany have shown that milk which is cooled rapidly after milking, so that the period of incubation is sufficiently extended to allow of the consumption of the milk before the incubation is completed, is much less likely to produce disease than milk in which this precaution is not taken. The observations referred to were made upon a large number of children fed upon milk from various sources and treated in different ways. In all cases in which sickness could be traced to the milk it was found that the precaution of cooling the milk had been omitted, while those infants who were fed with milk which was promptly cooled after milking and kept cool, were almost wholly free from disturbances from this cause.

Cases of tyrotoxicon poisoning have been traced to the neglect of this precaution.

6. The milk-containing vessels themselves may be a source of contamination of milk. This is a matter with which every housewife is acquainted.

Milk put into vessels which have not been properly scalded, promptly sours. Such milk, even though it is eaten before souring or other decomposition has occurred, is likely to produce disease in young children and other persons of feeble digestive powers, as the process begun in the pan is continued in the stomach. This is one of the reasons why fresh milk from the cow frequently agrees with invalids or with young infants when milk can be taken under no other conditions without injurious results.

If the above mentioned precautions are adopted and care is taken to ascertain that the animal from which the milk is taken is in a fairly healthy condition and remains in a healthy state, no danger may be apprehended from the use of milk; but until the general public have become much more thoroughly educated upon this subject than is likely to be the case for some time to come, a wise precaution which may be safely adopted as a routine practice in the use of milk is sterilization or Pasteurization.

Sterilization consists in raising the temperature of the milk for a few minutes to the boiling point, or a few degrees higher. If the milk is heated to the boiling point or a temperature of about 210 degrees for a few minutes, all deadly germs and most other germs will be destroyed.

A few spores, however, are almost certain to escape, so that milk

which has been merely boiled will not keep indefinitely. For this, it is necessary that the temperature should be raised several degrees above the boiling point, or to about 220 degrees and held at this point for ten to twenty minutes. The higher temperature named may be obtained by placing the milk in bottles, tightly corking, and boiling while immersed in a saturated solution of common salt. It is necessary to leave the bottles in the solution until it is cool, as they will break if suddenly removed from the hot solution.

Objections have been raised to sterilization on the ground that it changes both the flavor and to some degree the composition of the milk at the same time that it destroys the microbes which it contains. To meet these objections the method known as Pasteurization has been proposed. After using this method on a large scale for several years, I can heartily commend it. It consists in heating the milk to a temperature of 158 degrees and keeping it at that point for fifteen minutes. Exposure for this length of time to the temperature named will destroy typhoid fever germs, and all other disease producing microbes which are at all likely to be found in milk, although it will not destroy all germs capable of souring milk or producing other forms of decomposition. The germs which produce decomposition of casein, such as takes place in the formation of cheese, require a temperature above that of boiling water. Pasteurization consequently cannot be depended upon for the long preservation of milk, but when carefully done, it is found that milk thus treated will keep from one or two days longer than raw milk. By the daily repetition of the process it is, of course, possible to preserve the milk practically unchanged for almost an indefinite length of time.

It should be mentioned that it is important to cool the milk rapidly after heating, as Pasteurization merely prolongs the period of incubation or development of many of the germs which it contains, and it is important to maintain as low a temperature as possible after the heating, as heat greatly favors the process of incubation, or development.

This method of treating milk preparatory to using it is by no means as troublesome as it may appear. There are no obstacles whatever to its practical adoption on a small scale in private families, and its use on a large scale is not a matter which offers any considerable difficulties. For the last five years I have had Pasteurized or sterilized all the milk consumed in the institution of which I have

charge, amounting to 1,200 to 1,500 quarts daily, and the work has been accomplished by very simple arrangements. After the removal of the cream with a centrifugal separator, the milk is heated in large double boilers and afterwards placed to cool in ordinary creamery tanks furnished with long, narrow receptacles.

So far as I can learn from inquiry, the milk supply of Union City is essentially that of most interior towns, neither better nor worse. It is certainly much superior to that of our large cities, but it is exposed to all or at least most of the dangers which have been pointed out in this paper, and doubtless is responsible for a certain proportion of the deaths which annually occur in the community.

The most serious dangers to which attention has been called are not those of an extraordinary character, such as cholera, typhoid, and other epidemic infections, but the ever present danger of infection from tuberculosis and to injury from the deleterious effects of the germs constantly present in milk collected and used under ordinary conditions.

If some of the conclusions of this paper seem to be overdrawn and the recommendations impracticable and fastidious, I shall neither be surprised nor offended, for the history of sanitary progress shows that at every advance step in the direction of improved hygiene this same obstacle has been met and surmounted.

INDIVIDUAL COMMUNION CUPS.

BY ELLEN A. WALLACE, M. D., STATE SUPERINTENDENT OF HYGIENE OF THE WOMAN'S CHRISTIAN TEMPERANCE UNION.

One year ago an apology was required for proposing or discussing any change in the manner of administering the sacrament at the Lord's table; now the question of individual communion cups is so freely discussed by clergy and laity in religious, scientific, and secular journals, that no such apology is needed, although we must always approach this subject with a spirit of reverence, not only toward Him who said, "Drink ye all of it," but toward all the generations of these nineteen centuries who have observed this sacramental rite.

As the advance of science shows the ways in which diseases are communicated, we should do all in our power to avoid such communication by our customs, be they in the family, travelling car, school, or church. Certainly the church, aiming to do all she can for humanity, should be ready to remove danger from her own flock as soon as such danger is discovered. And when we know how many churches all over the country, and of nearly all denominations, have changed their custom during the short time this question has been agitated, we believe that all will be ready to act as soon as they can be made to realize the importance of the movement.

Those who are working for the better sanitary condition of our country and of our state, who are aiming to decrease our death-rate by the avoidance of contagion, should agitate this question thoroughly and everywhere advocate the removal of the common drinking cup, educating the people to realize its dangers and their duty respecting it toward their fellowmen. During the past year many

county and state medical societies have adopted resolutions recommending to churches the use of the individual chalice for the communion service.

There is no question that many diseases can be transmitted by the secretions of the mouth; in the present manner of communion these secretions enter the cup and also adhere to its edge to be removed by later communicants. At a recent meeting of the Monroe County Medical Society, in New York, an epidemic of diphtheria was reported by one of the health officers. This epidemic was confined to a single school district, twenty-four families being afflicted. The contagion was traced back to the drinking cup used in school and used by the diphtheritic children, microscopic examination revealing the diphtheritic microbes adhering in great quantities to its rim. Another epidemic has been reported from California in which it was believed the communion cup was the cause of the spreading of the disease.

Dr. Albert Ashmead writes for publication the following which illustrates frequently existing conditions: "The last time I knelt at the communion altar there knelt at one side of me a patient whom I knew, as I was treating him at the time, to be suffering from an odious disease; his mouth contained patches which made it especially contagious. This person took the cup before it came to me; of course I let the cup pass. At another time the person next to me, but following me in the use of the cup, was also a patient of mine in an advanced stage of tuberculosis; the mouth of this patient was in a condition dangerous to his neighbor."

Many pathologists have made microscopic examinations of the wine remaining in a common communion cup after service and have found abundant proof of its power of contagion. We will refer to but one of these. Dr. H. S. Anders of Philadelphia writes, "In May last I found in two out of five specimens examined from a communion cup the following several bacilli of tuberculosis: staphylococci of pus formation, numerous pus cells and epithelium from the mouth, showing the dangers inherent from promiscuous contact."

Certainly the custom of returning to the bottle what is left in the cup after service should be abolished. Investigation reveals this to be the custom of many churches, and some even send that bottle with its rinsings of lips and mustaches and its accumulation of

microbes to the sick of the parish who in their weakness are especially susceptible to contagion.

Many have said, "I cannot remember the time, when partaking of the sacrament, that I did not watch the cup which would come to me, my spirit of devotion being affected by the amount of satisfaction or repulsion which followed such observation."

Certainly we should consider it unclean for all to drink coffee from the same cup at a church social; why, then, is it strange that many have the same feeling at the Lord's table? If it has been rightfully advocated that, if the common cup is thus offensive to many, if it usurps the place of Christ in the sacred memorial, a remedy should be sought for and applied. We are told that when Leonardo da Vinci, the celebrated historic painter of Italy, was engaged upon his great painting upon the wall of the convent of Santa Maria delle Grazie, The Last Supper,—representing the Saviour and his disciples at the paschal feast, each supplied with an individual portion of bread and an individual vessel of sacred wine —a person was invited to examine the work, who soon began to enlarge upon the beauty of the chalice; the painter immediately dashed his brush across the object of admiration, because, he said, he had made a mistake in not so painting the picture as to make the face of the blessed Master the centre of attraction.

It is argued that when the common cup is discarded, we abolish the spirit of unity which Christ sought to exemplify; not so,—churches adopting the individual cups testify that partaking in unison and bowing in prayer at the same time, increases the spirit of fellowship.

By their use the service is shortened, the attendance is increased, for each member is made to realize that a cup is filled for him and put upon the Lord's table and if it is not taken it shows by its presence the absence of the owner.

There have been various changes in the method of administering the sacrament,—in some ages the bread and wine were mingled together, in some the priest partook of both emblems and the people only of the bread; at one time the wine was imbibed through a tube called a fistula, at another the eucharist spoon was used, and at still another each communicant took to the altar a small vessel in which a portion of the mingled bread and wine was placed, then carried to the lips. Thus from history we learn that the spirit of the ob-

servance is the one great matter of importance, but the method is subject to change, according to the civilization and the customs of the times. Even where the common cup is used, the number is increased to two, ten, or twenty for convenience; considering this and the example of previous generations, need we hesitate to advocate a change for cleanliness and health which shall be of benefit to our fellowmen, if it does not destroy the sacredness of the memorial?

POTABLE WATER.*

BY EDWIN J. BARTLETT, M. D., DARTMOUTH COLLEGE.

Potable water is drinking water. Drinking water is held to the same high standard as Cæsar's wife. But water after it has left the heavens and started on its earthly career, not only goes downwards, but keeps bad company; it consorts with the effete, the putrescent, the excrete, the vegetable extract, and the soluble mineral. The rank slops from the kitchen sink, the rich leaching of the neglected barn-yard, the flushings from the water-closet, the dirty waste from the factory, the drainage from the grave-yard on the hill, the products from vegetable and animal life and death, are all received into the liberal water courses. And from below, the salt beds, the iron ores, the epsom salts and the lime deposits are drawn along by its solvent power. The deadly typhoid bacillus, the ovum of the tape-worm, the beneficent nitrifying bacterium, find a temporary home in its all-welcoming current. And all the gases or fluids occasionally or constantly in the air, are greedily niched into its surface.

In populated districts the presumption is against its purity; while in upland springs where only the sky and unoccupied land are above the presumption is favorable.

SOURCE OF DRINKING WATER.

For drinking purposes water is taken from wells and springs, and from reservoirs, either natural or artificial, of surface water.

A well is a hole in the ground, and its contents may be the

* Read before the New Hampshire Medical Society.

unfiltered drainage from a filthy surface, or well filtered and oxidized water from a deep spring.

The spring water has passed through the soil, the sand, and the gravel to emerge at a lower level, filtered and oxidized, but carrying mineral constituents from the materials with which it has come in contact. In its best estate it is the most satisfactory water in nature, colorless, cold, and organically pure. And no springs are purer than those from the hills of New Hampshire and Vermont.

The surface water varies with source and environment, but carries the washings and drainage of the surface over which it runs, is usually perceptibly colored, and is an unsatisfactory, though necessarily common, source of supply. The large city supplies are guarded only by constant vigilance and continuous observation. Each of the six supplies from the Thames to London is examined and reported upon daily.

IMPORTANCE OF THE SUBJECT.

Now mankind, with a few exceptions, drink water. It is the one common condition with reference to externals except breathing air. The uninstructed naturally drink the nearest water that is tolerable. The well informed must drink, if not supplied with good water, the best to be had. Even the simple and usually efficient precaution of boiling the water for a few minutes is irksome, and most of the few who know the risk prefer to take it. But water is a pregnant source of disease, both specific and general. Two of the most fatal diseases of humanity, Asiatic cholera and typhoid fever, are disseminated chiefly, if not exclusively, through drinking water. From its nests on the Ganges, from the sacred well at Mecca, where the pilgrims wash in the water and drink the washings which return to the well, the comma bacillus starts on its deadly travels. The German Health Commission reported the cholera epidemic at Hamburg as directly traced to an inconceivably filthy history and condition of the waters of the Elbe, including specific infection.

Much nearer home is the typhoid fever, whose propagation is well illustrated by a few famous cases; such as the milk

route at Springfield, the high Chicago death rate before opening the four-mile intake, immediately lowered after; the Lowell and Lawrence epidemics of 1890; the St. Johnsbury epidemic more recently when the drinking water of the village came in part from the Passumpsic river below a region infected with typhoid; and the deadly epidemic at Windsor this spring.

Among the interesting facts obtained from the study of the Lowell and Lawrence epidemic, it was shown that a bacillus might reach Lawrence in eight hours from Lowell, that it might survive twenty-four days in Lawrence water, that a run of six hundred and seventy-five miles at the rate of the Merrimack would be needed to remove all bacilli from the water, that the bacilli might drop in the mud and propagate there, and best of all that proper filtration could remove all bacilli from the water.

More often, however, than by infecting with specific disease, bad water acts to pre-dispose to disease by reducing the power of resistance.

HISTORICAL OUTLINE OF THE SUBJECT.

With a partial and increasing appreciation of these conditions, sanitarians have devoted much study to drinking water. Without attempting to bring together any continuous historical account, it may be stated that important literature upon the subject begins about 1850, has a marked impulse about 1868, and that the last decade has borne an indigestibly rich literature of experimental data and conclusions.

The home of chemical methods is in England, of bacteriological in Germany, and it has seemed to be for the sanitarians of America to make the most fruitful, rational, and serviceable applications and modifications. In England the eruptive warfare between Wauklyn and Frankland has stood seriously in the way of unity and sound progress.

In the United States the wonderfully enlightened policy of the Commonwealth of Massachusetts in maintaining a corps of the ablest workers to be had, untrammeled by politics, in a long series of systematic researches has been a source of rich knowledge to the world, and nothing can be said upon either

water or sewage without constant reference to the Massachusetts work.

CAUSES OF CONFUSION.

Throughout this working period even to the present time two general causes of uncertainty and confusion have prevailed: First, a difference in methods and countless variations in practising the same method, and second, an uncertainty of interpretation due to the fact that the chemical, microscopical, and generally the bacteriological methods furnish only circumstantial evidence. Fuller reference will be made to both these points; but upon the second, the interpretation, it may be said as essential that the thing which does, or causes, harm in water, rarely exceptionally, almost accidentally is revealed. Failure to discover the bacillus of typhoid does not clear the water of suspicion of the gravest kind if typhoidal dejecta have passed the water. Nor will any amount of chlorin and ammonia convict a water of sewage pollution if it cannot possibly have met with sewage in its earthly career. Nor can it be said with any certainty from the albuminoid ammonia in the brown peaty waters that the water will in any way affect the health of the consumer.

ABSOLUTE STANDARDS NEARLY IMPOSSIBLE.

Almost inevitable but as hopeless as the search for the philosopher's stone, has been the effort to establish criteria of circumstantial evidence upon which all waters may stand or fall. Alone, unenforced by comparisons or by positive evidence, the organic nitrogen and carbon ratios of Frankland, the albumenoid ammonia of Wauklyn, the fifty colonies of bacteria of Koch, the consumed oxygen of Tidy, excess of chlorids, presence of nitrites, butyric fermentation, all fail in critical cases. Either unpolluted waters are condemned or polluted waters are endorsed. It is as if legislative enactment or judicial decision were to define the evidence which should in all cases convict of murder a man who was not seen to do the deed. Out of this desire for analytical positiveness has grown a tendency to shut the eyes to the most convincing and valuable of all evidence—the sight of the sewage flowing into the water, and to speak evil of a water that can prove an alibi.

This should not be misunderstood. The comparative condition of the same water can well be traced from day to day or month to month; a good or a bad water generally discloses its character to analysis; but when it comes to a positive opinion on a single sample all criteria may fail.

PURPOSES OF WATER ANALYSIS.

The various modes of water analysis have certain distinct and definite ends in view. The limits of this paper will not permit a careful tracing of the lines of evidence in each direction; but for one purpose one kind of evidence is valuable, while for other purposes it may be worthless.

In brief summary it may be said that water is examined (1) to pronounce on its general fitness for drinking supply (infection with specific disease being excluded). (2) To establish fitness or unfitness for various industrial uses, like brewing, paper-making, steam-making. (3) To study scientifically its history through considerable periods, including the efficiency of processes of purification. (4) To pronounce upon the sanitary condition of a water otherwise good, including its certainty to cause either general or specific disease.

For the first three lines of investigation—general fitness for domestic and industrial uses and history—the processes in use, though not perfect, are fairly satisfactory. To answer pointedly the very important question, Will this water to-day cause typhoid fever or diarrhœa or any other ailment? no one is able upon any single examination, or any number of chemical analyses. Repeated biological examinations, by competent hands, will often but not always afford an answer.

METHODS OF INVESTIGATION.

The methods of investigation may be grouped into five divisions:

1. A study of the environment.
2. Microscopic examination of the sediment.
3. Bacteriological examination.
4. Physiological tests.
5. Chemical analyses.

ENVIRONMENT.

The first method—the study of environment—is sadly unappreciated, but is in many cases the simple, efficient, incontrovertible, common-sense method. If you are doubtful whether your cesspool drains into your well the chemist may help you find out, but if you know it does, what more is to be said? With typhoid at Windsor who wants to drink the water of the Connecticut at Bellows Falls, though one hundred analyses show no peculiarity in the water?

It is a serious matter to condemn a water supply, but it is more often serious not to condemn it. Suppose,—and this is merely a supposition since the facts seem to be in question,—but suppose that there was a case of typhoid on the water-shed of the Windsor reservoir, from which the dejecta ran to the basin, then the youngest neophyte in medicine might stand with all the authority and sternness of a Hebrew prophet and say, "Thou shalt not drink this water," and a convocation of all the chemists and biologists in Christendom could not contravene his position, at the time. By inspection, too, are established normal, unpolluted waters which furnish an essential standard of comparison in the examination by any other method.

MICROSCOPIC EXAMINATION OF SEDIMENT.

The organisms not bacteria have long been studied in drinking water. McDonald's classic work appeared in 1875.

The most perfect method at present is probably the Sedgwick-Rafter method, in which the organisms are collected by filtering a considerable portion of water (500 c. c.) through chemically clean sand and are afterward washed out with distilled water; enough of this distilled water to represent 100 c. c. of the original sample is put on a cell slide divided into 1,000 parts; the animal, vegetable, and amorphous residue is counted and identified in from twenty to fifty of these divisions. As illustrative of the imperfection of the previous (and perhaps of the present) methods, it appears that this method gives from two to four times as many organisms as the method it displaced, and the displaced method gave several times as many as the one which it had superseded. A great deal of work has been, and

is being, prosecuted in this direction but I am not able to generalize the results.

BACTERIOLOGICAL METHOD.

The bacteriological method takes 1 c. c. or less of the water in the freshest condition possible, incorporates it with culture media, places it in a condition favorable to growth and counts or in some cases especially cultivates the colonies which develop, the assumption having been that each bacterium in the original specimen develops a colony in the culture. For a time fifty colonies per cubic centimeter was considered the limit of approval.

It is true that some of the purest natural waters are nearly sterile and that sewage may exhibit millions of germs in a centimeter; but it is now generally recognized that this method has almost no value in a single examination. The most deadly germs are discovered only exceptionally; no one culture can be obtained for all the germs; the method of counting does not distinguish between pathogenic and non-pathogenic germs; the water is often better because of the germs, it is likely that germs developing below the temperature of the body have little or no effect upon it; and then the germs multiply enormously in the same sample in a very short time.

This method has its main value when repeated upon the same water under similar conditions, and is especially useful in determining the efficiency of filters and other purification processes.

THE PHYSIOLOGICAL METHOD.

The physiological method is an approximation to the root of the matter. The fundamental question about a drinking water is not how many bacteria or how much nitrogen it contains, but what is to be its sanitary effect; and physiological tests aim to answer that question. Physiological tests upon rabbits had oddly perverse results in the hands of Professors Martin and Hartwell during Mallet's investigations in 1881. Out of the thirty-eight waters reasonably believed to be infected and pernicious from their history, not one was reported dangerous from its effect upon the rabbits, while on the other hand water containing infusion of leaves affected the rabbits badly.

Vaughan, in an elaborate paper published in the *American Journal of the Medical Sciences* in 1892, details what is probably the most careful and hopeful of the physiological methods. He makes gelatine cultures for counting and study, and beef tea cultures for inoculation. The beef tea cultures are kept in an incubator at 38°, the temperature of the body. After about twenty-four hours white rats are inoculated in the abdomen from these cultures. If the animals die plate cultures are made from their spleen, livers, and kidneys for study.

His conclusions are (1) that germs not growing at the temperature of the body are not capable of producing disease. "It matters not," he says, "how rich a given sample of water may be in these germs, if it contains no others it cannot be said that the water is a source of typhoid fever. The freedom from typhoid fever of communities using such waters seems to justify this conclusion. Such a water may not be, and certainly often is not, a desirable drinking water. It may be turbid with suspended matter, unpleasant to the taste, and give off a disgusting odor, but there is no evidence that it can cause disease." (2) Of the germs which grow at 38°C. or at a higher temperature some are fatal to animals when injected sub-cutaneously, while others are not. This renders possible a division of them into toxicogenic and non-toxicogenic. (3) There is no proof that the non-toxicogenic germs can multiply in the animal body. This does not furnish proof that they might not develop in the body of man. Waters containing these have not been positively condemned, but in some cases it has been advised that their use should be discontinued. (4) Waters containing the toxicogenic germs have always been condemned.

Dr. Vaughan had studied thirty-one water-germs; of these seven grow well above 38°, two or three others feebly. Four are toxicogenic. He has tried these by six methods of culture, all of the seven developing above 38°, and three others grow in "Parietti's Solution."

This method, however, and any method depending on the evidence of a single sample must often be indecisive in its negative results, because of the impossibility of knowing whether or not the sample represents the conditions of constant use of the water.

CHEMICAL METHODS.

The methods of chemical analysis have had, and at the present continue to have, greatly predominating influence in pronouncing upon the character of water.

There is growing and reasonable distrust of these methods exclusively applied. This is based upon the admitted insufficiency of the methods for all cases, the variety of results in various hands and the notorious mistakes in interpretation. These chemical methods do yield, however, valuable results, ample in some cases, suggestive or presumptive in others, and, when obtained in a rational series, historical and comparative. They do not touch the question of specific disease.

New Hampshire, Vermont, and Maine can not be said to have a definite system or policy in water work. Massachusetts has carefully studied methods, which Connecticut is closely following, so as a working system I will, in a general way, notice the Massachusetts methods, though of course not attempting accurate description of manipulative details.

The water analyst obtains his information from sources both physical and chemical, and reports under conventional and pretty well known headings.

The amount of *suspended matter* (which gives turbidity to the water) is determined by the difference of solids on evaporation before and after standing twelve hours. Suspended solids are usually easily removed by subsidence or filtration and do not play a very important part in water analysis. Though they were important at the time when one could get a dozen live minnows from a pail of Chicago water taken directly from the faucet, and minute particles of mica have produced serious irritation of the bowels.

Results are generally described in parts per million (which is milligrammes per litre) ; though in Massachusetts parts per 100,000 has long been the record.

Color is a mixture of bule and brown and is generally dependent upon the extractive organic matter from plants and leaves mixed with the color of pure water. There are several arbitrary standards. In England two wedges, one blue, the other brown, are slid one over the other till the color of the sample is matched.

The wedges are divided into 40 parts, and 20 : 30 would mean division 20 of the brown over division 30 of the blue matches the water. The color of Nesslerized ammonia is also used. Another arbitrary and seemingly very useful scale has been established by Mr. Allen Hazen by the admixture of a platinum and a cobalt salt. With a recognized and accurate standard any analyst can match the color of any water, and daily or periodical changes are matters of record. The chief objection to color is its unsightliness. In some of the most highly colored peaty waters it has been found that there was very little tendency to decomposition. Surface waters in this region are nearly always colored. With reference to colored waters stored in reservoirs the Massachusetts conclusion is that the color of waters exposed to the sun in open reservoirs is reduced by storage, but it must be stored for several months to cause any material reduction of color, and from six months to one year to remove all of it.

The *odor* of a water, like its color, is most satisfactory in its absence. We, at Hanover, have had a marked instance in the evolution of sulphuretted hydrogen from the new reservoir. Sewage imparts a characteristic odor which can detected by expert noses, in extreme dilution. The method is merely by smelling the water after it has been warmed in a covered beaker or flask.

The *total solids* or *residue on evaporation* is obtained by evaporating to dryness a measured quantity of the water and weighing. This constitutes an important factor in judging of waters for general use and in following the changes in water, but within the limits of service has little or no bearing on the sanitary character of the water. Most of the spring waters of this region have from thirty to fifty parts of solids per million, and the surface waters rather more than the upper limit. The normal surface waters of Massachusetts vary from forty in the eastern to sixty in the western part on an average. It would rather surprise a New Hampshire community to use the good water of English standards. "A water," says Fox, "should not possess more than [400 or 600 parts per million] of solids." It is customary to submit these solids to a red heat in a platinum dish and observe *phenomena and loss on ignition*. Organic matter

blackens and burns. On the whole, however, this process has little value and is discarded entirely in some laboratories, while in others it is done only with certain classes of waters and under carefully prescribed conditions. Mineral salts lose their water of crystalization during this process and some are decomposed besides.

The *hardness* of a water is the quantity of salts of lime or magnesium it holds in solution. These make the water literally hard, so that its sound when shaken in a closed bottle is distinctly different from that given by a soft water. The hard water uses up soap to form insoluble soaps of lime and magnesia before it will make a lather, and its hardness is commonly measured by the quantity of soap solution of definite strength which it uses up. Very hard waters are disagreeable to the body, expensive to the laundry, and rapidly encrusting in steam boilers, while soft waters are more corrosive to iron and more likely to carry lead from lead pipes. In England a careful comparison of the health of towns using very hard and very soft waters has been made, with the conclusion that if equally free from deleterious organic substances, hard and soft waters are equally wholesome. The Hanover aqueduct water has a hardness of 27.2 and the new reservoir of 19.2. The water furnished to London from the Thames varies from 230 to 450.

The *oxygen consuming power* is an important general consideration. It is commonly estimated by permanganate of potassium, a brilliant purple substance which readily parts with oxygen and loses color. Its evidence is general rather than special. A water using up oxygen in considerable amount is likely to be a water containing matter capable of putrefection. Of any single substance the most important is *chlorin* in water as a constituent of common salt, for the reason that salt is an invariable accompaniment of human excreta and of sewage. It is not the chlorin that is important, it is the source of the chlorin. It is the excess of the chlorin over that normally in the water of the same region. In this direction a remarkable work has been accomplished in Massachusetts. From a study of normal, unpolluted waters the whole state has been mapped out in iso-chlor lines. The least chlorin in a normal water is at North Adams, .6 per million, the most at Nantucket, 21.6.

They announce the law that the excess of chlorin is in direct proportion to the population on the drainage area. Four families or twenty persons add .1 to the normal chlorin.

There is a group of compounds all containing nitrogen to which also special significance attaches. They are called *free ammonia*, *albumenoid ammonia*, or *ammonia by permanganate*, *nitrites*, *nitrates*.

When organic matter of animal origin begins to decompose, one of the earliest products is ammonia; this is to some extent taken up by plants and turns up later as a product of their decomposition in compounds which by the action of certain reagents give off ammonia; this kind of ammonia is called albuminoid ammonia. Much of the free ammonia, however, is in the presence of bacteria oxidized to nitrous acid (whose salts are nitrites) and finally and stably to nitric acid (whose salts are nitrates). It will be seen then that free ammonia is to a certain degree evidence of very recent pollution with decomposing matter, that nitrites are intermediate products of imperfect oxidation, and that nitrates are the final permanent result of complete oxidation, but could not be present unless at some time the oxidizable material had been at hand. They are food for plants and hence seldom abundant. The albuminoid ammonia points to vegetable decay.

On account of the history of these substances thus briefly sketched, all harmless in themselves, much stress is laid upon their quantity, especially if it can be traced from day to day in the same water. They are like the sign board, which says "look out for the engine when the bell rings or whistle sounds."

The item in the chemist's report *nitrogen as free ammonia* is obtained by distilling the water and collecting the distillate in graduated jars, to these jars is added the Nessler reagent (so the process is called Nesslerizing) which gives a brown color with minute traces of ammonia; this color is matched by adding to ammonia free distilled water, known quantities of ammonia, and the difference between .002 and .001 per million is readily detected by the practised eye. Free ammonia is present with rare exceptions in all natural waters, in minute quantity and means, or suggests, according to its degree decomposition of

recent nature. Though called "free" it is seldom really free but is combined with carbonic or some other acid.

The *albuminoid ammonia* does not exist in the water as ammonia, but is made into ammonia by the reagents used. It may be of harmless vegetable, or decomposing animal origin; still it is not water and is not wanted in the water. Subjected to the action of a strong solution of permanganate of potassium in caustic potash the nitrogen compounds break up and produce ammonia which is distilled off and determined by the Nessler reagent like free ammonia.

The *nitrites* in the water are salts of metals with nitrous acid, the partially oxidized and unstable compound. On account of its transitory nature it is always when found taken as evidence of an unsatisfactory condition. Free ammonia, chlorin, and nitrites point straight to sewage. The nitrites are detetmined by a beautiful color reaction, the sample being matched by distilled water containing known and very minute quantities.

The *nitrates* represent salts of nitric acid, the more stable completely oxidized compound. Frankland has urged the nitrates as evidence of "previous sewage pollution." This view is commonly accepted, but not as affecting the water unfavorably any more than a scar suggests future danger. They are historical. They are valuable evidence in the daily or comparative study of water in showing what has become of the ammonia. Several quite technical methods are employed for their determination.

DIVERSITIES OF METHOD.

The distillation of ammonia will furnish an illustration of the endless variation of method even in carrying out a familiar standard process. A definite quantity of water is put into a retort and the ammonia and the albuminoid ammonia are distilled off in a cleanly manner, and the distillates treated with the Nessler reagent. The color is matched by a known quantity in the same volume of distilled water. Thus the quantity is determined. If this conveys a definite idea to the unchemical mind, the process doubtless seems so simple that a well instructed child could carry it out satisfactorily. As a matter

of fact, until one decides just how he will do it, no matter who rises as contrary authority, the whole process is as blurred to his mental vision as a revolving wheel.

Cleanliness means the absolute, tested, and proved freedom from ammonia of reagents, apparatus, hands, and rooms; the quantity of water used may be from 100 to 500 c. c.; carbonate of soda may or may not be added in the distillation; the condensing tube may be glass or block tin; cork, or rubber, or glass stoppers may be used; the receivers should be of one or another definite size and shape according to the manipulator; the rate of distillation is an open question; the number of distillates for free ammonia may be three, four, or until no more comes; the permanganate may be added to the residue of the liquid in the retort or to a fresh quantity from the same sample; the distillates may be Nesslerized at once or the next day; the Nessler reagent and the ammonia for comparison may be made up in one way or another; the report may be in nitrogen or in ammonia; in parts per million or per hundred thousand.

The report of oxygen consumed by a water is absolutely without meaning or value unless the exact method is known. It may have been done in twenty minutes, one, six, or twenty-four hours, and by several different methods.

From these variations, and many more, the results of different chemists, equally careful and accurate, do not compare at all well; while there is no place at all for the slovenly and inaccurate. On the other hand, any variation maintained uniformly and carried out accurately gives great comparative value to a series of analyses in the same laboratory. For instance, the Massachusetts board of health constantly distils three 50 c. c. jars for ammonia on the ground that they have worked out the adequacy of that procedure; Leffman & Beam recommend four, and the committee on water analysis of the A. A. A. S. recommend distillation till no more ammonia comes by actual test. The Massachusetts Board of Health continues to record its thousands of results in parts per hundred thousand while the general advice and practice is in parts per million. But the Massachusetts Board of Health has accumulated more valuable data on the subject than all the rest of the country put together.

ATTEMPTS TO UNIFY THE METHODS.

The prevailing confusion is by no means unrecognized or undeplored. In 1881 the national board of health undertook an elaborate examination of methods through J. W. Mallet and an able corps of assistants. Their report covers one hundred and sixty finely printed pages in the Board of Health Report for 1882. It consists of an examination of processes by using waters of known character. Very little has seemed to come of it, perhaps because it was an abstract investigation in which chemists most experienced in water work were not concerned. Among the negative results of this report was the endorsement of the Frankland process, but when seven years later a committee of the A. A. A. S. investigated over the same ground, it appeared, so far as the scanty replies to their circulars showed anything, that no one used this process. The biological work upon rabbits was unsatisfactory, as already mentioned; it appeared also that water containing fæces gave chemical results which might be attributed to vegetable matter in solution.

The general conclusions were:—

1. That unwholesomeness cannot be decided by chemical processes.

2. That these are secondary to source and history.

3. Gross pollution and departure from normal condition can be decided by chemical processes.

4. Local standards may be established.

5. Special value should be given to nitrites and nitrates, and many special recommendations were made upon the various processes tested.

In 1888, a series of questions were sent out to all well-known water chemists in the country by a committee of the A. A. A. S. The questions were also sent separately to subscribers to the *Journal of Analytical Chemistry*. Just seven replies were received. On the basis of these and their own views, the committee made a report. But after all, if the exact methods of Mallet, the exact methods of the A. A. A. S. committee, the exact methods of the Massachusetts board of health, and the exact methods of Leffman & Beam were followed, the analyses would not compare well.

POSITION OF AN INDEPENDENT CHEMIST NOT HAPPY.

The present position of a chemist not having the authority and resources of a commonwealth or large city at call, is not felicitous when asked to report upon a sample of water.

Unless he has sent his own demijohn and has had the sample taken by trusty hands, there is no certainty that the sample even decently represents the water. The difficulty is complicated by sending to another chemist a sample without considering it at all important to take the samples under similar conditions or to make sure that the dirt or vinegar or molasses left in one jug is equal to that left in the other. Even if the sample is correct, there is an uncertainty in comparison, for the reason that exact agreement can come only from exactly similar methods with the same reagents and the same samples. If one chemist gets his residue of ignition by adding carbonate of soda and igniting with a radiator, while the other conceives the residue to be that actually obtained without adding anything and igniting over a naked flame, the results will seriously differ though each may be correct according to the method.

Having obtained his results he can not interpret them with any certainty except in the case of some very good and some very bad waters. The results are data in a comparison, but in a single case he has nothing with which to compare. There is one standard for the Connecticut at Hanover, and another for it below Hartford, Connecticut.

The uncertainty is increased by the hankering after *blind* justice which possesses many people so that they sedulously conceal every item of information as to source and environment of the water. Typhoid fever was raging on the line of the Windsor, Vt., water supply, and only on that line. As if that fact in itself did not constitute a sufficient reason for letting the water alone, a sample was sent to Boston for analysis. But it was n't thought best to mention the little matter of typhoid to the chemist; they thought they would let him find out for himself. His report was very favorable to the water and was regarded by many as an impartial, and therefore trustworthy, pronunciamento. But the typhoid fever went on. Another chemist to whom the water was submitted with the facts, de-

clined to analyze, but pronounced it unfit for use. His view was thought to be biased!

SUGGESTIONS FOR THE MEDICAL FRATERNITY.

In reading a paper like this to physicians, who are for the public the immediate advisors and interpreters in sanitary affairs, a few conclusions if not based upon, at least suggested by, these statements may help to a better understanding.

NO ABSOLUTE STANDARD.

First and most important, there is no absolute standard of chemical results upon which all waters stand or fall. A chemist may condemn a water for some purposes and approve it for others; he may say this water is too filthy to use; he may say from previous examination this water is far below its usual condition; or this water is much inferior to similar waters of the region; or this gives strong evidence of excessive vegetable matter; or even, of sewage pollution.

CHEMICAL METHODS DO NOT CATCH DISEASE GERMS.

He can not say this water does or does not contain the germs of disease; his methods do not touch this question. If an astronomer spends the night in his observatory and in the morning when asked his results shows a column of figures and declares, "I find no snakes in Ireland," you think him crazy, but his methods enable him as well to say this as a chemist's methods enable him to detect the germs of disease. If a chemist reports at all upon the presence or absence of morbific germs it is proper to ask him what methods he used.

BIOLOGICAL METHODS PROMISE MORE.

The biological methods go farther than the chemical and repeated examinations accomplish valuable results. But the bacteriological methods do not permit the statement from a single sample that no pathogenic germs are in the water supply nearly so much as spending the day in the woods with a gun without seeing a partridge warrants the statement that none were in the woods. The physiological method, while little used, seems to have great promise. It is worth watching.

A PERFECT SAMPLE OF EXTREME IMPORTANCE.

The methods of water analysis are very delicate and the most absolute cleanliness in the sample is essential for reliable results. Samples taken by the unskilled are seldom fair. Samples taken at different times are often very unlike.

METHODS AFFECT RESULTS.

Chemists have not the same competence in this kind of work, but even when they have, there is a reasonable margin of variation from different samples, and a considerable margin from differing methods which may be equally correct. It is important, therefore, that the chemist be requested to state his methods of work. Usually there is a distinct disadvantage in sending to different chemists; if neither is honest or competent the results are worthless anyway. The repetition of analyses in the same laboratory with the same reagents, methods, and personal equation gathers value in going, while scattered results bring confusion and doubt.

TRUST THE CHEMIST, OR LET HIM ALONE.

Again, the chemist, if employed, should be trusted. The public, with a few enlightened exceptions, act on the principle that the water chemist is a mechanical appliance for accumulating data, and that the less he is informed about the matter in question, the more honest and reliable his data will be. He would perhaps have little cause to complain of this attitude, so long as it did not hamper his work and restrict his growth, if the public were content with the data, but they ask for a professional opinion in addition. That is, he is to throw away all his knowledge, and experience, and breadth of vision, and hazard his reputation on a guess; because his data commonly do not touch the question of absolute healthfulness of the water. This case is entirely different from asking an assayer to determine the ounces of silver in a ton of ore from a sample. Here outside facts have no bearing. But in the question of a drinking water every possible source of knowledge is to be desired, and it is the plain duty of the chemist either to give no

opinion, or to make it clear that his opinion does not go outside of his analytical data, which can tell him nothing about cholera, or typhoid fever, or diarrhea, or any other disease.

SYSTEMATIC STUDY OF WATER WOULD BENEFIT NEW HAMPSHIRE AND VERMONT.

The historical, comparative, systematic study of potable water is of great benefit and importance to a community even measured directly in dollars and cents. The states of Vermont and New Hampshire, with their throngs of summer visitors, their superb water sources, their frequent epidemics of typhoid fever, would be greatly benefited by elaborate modern study, and the world would profit by the examination and history of waters so pure at their source.

A BRIEF ABSTRACT OF THE VITAL STATISTICS.

The record of the vital statistics, carefully maintained from year to year, becomes of great importance to the state by indicating the movement of the population as well as determining certain conditions necessary to be known in order to formulate and carry out such laws, rules, and regulations as may be necessary for the greatest good of a community. Especially is this true in relation to the death records which form the true indicator in many instances for sanitary work. We are fortunate in this state in having already arrived at that period when the vital statistics have come to be of sufficient accuracy and completeness to make them valuable from a sanitary standpoint.

We are able to include in our observations the statistics of a decade, and to derive from them much that is of importance relating to the prevalence of the cause of mortality, and thus suggest to the health authorities certain lines of action in order to reduce an excessive mortality in a given locality.

The following tables, covering a series of years, chiefly from 1882 to 1893 inclusive, furnish reliable statistics relating to many phases of questions connected with the birth, marriage, divorce, and death records for the period named.

For a more detailed statement of the facts relating to the vital statistics of the state, reference is made to the annual reports relating to the registration and return of births, marriages, divorces, and deaths in New Hampshire, of which fourteen reports have already been issued, from 1880 to 1883 inclusive.

POPULATION.

TABLE No. 1.

Population of Counties in 1880 *and* 1890.

COUNTIES.	1880.	1890.
Rockingham	49,064	49,650
Strafford	35,558	38,442
Belknap	17,948	20,321
Carroll	18,224	18,124
Merrimack	46,300	49,435
Hillsborough	75,634	93,247
Cheshire	28,734	29,579
Sullivan	18,161	17,304
Grafton	38,788	37,217
Coös	18,580	23,211
Total	346,991	376,530

Table No. 1 shows the population by counties according to the United States census of 1880 and 1890. It is from these tables that our deductions as to the population for each year are arrived at.

TABLE No. 2.

Population of New Hampshire for each Year from 1880 *to* 1893 *inclusive.*

YEARS.	Population.	YEARS.	Population.
1880	346,991	1887	367,728
1881	349,952	1888	370,689
1882	352,913	1889	373,650
1883	355,874	1890	376,530
1884	358,845	1891	379,491
1885	361,806	1892	382,452
1886	364,767	1893	385,413

Table No. 2 represents the population of New Hampshire for each year from 1880 to 1893 inclusive, and is calculated from the census returns of 1880 and 1890. In this table the population for each year except 1880 and 1890 is calculated, and is believed to be approximately correct. The figures in the table mentioned are estimated upon the basis that there has been a steady increase in the population in the same ratio as was shown between the census returns of the two years named.

BIRTHS, MARRIAGES, AND DEATHS.

TABLE No. 3.

Births, Marriages, and Deaths, with the Population and Rates, for 1884 *to* 1893, *inclusive.*

YEARS.	Population.	Births.	Marriages.	Deaths.	Birth-rate per 1,000.	Persons married to 1,000.	Death-rate per 1,000.
1884	358,845	6,247	3,292	6,194	17.40	18.34	17.26
1885	361,806	6,319	3,180	6,201	17.46	17.56	17.13
1886	364,767	6,657	3,324	6,426	18.24	18.22	17.61
1887	367,728	6,910	3,495	6,479	18.78	19.00	17.61
1888	370,689	6,443	3,379	6,854	17.38	18.22	18.48
1889	373,650	6,912	3,621	6,696	18.49	19.36	17.91
1890	376,530	6,946	3,621	7,368	18.44	19.22	19.56
1891	379,491	7,510	3,904	7,310	19.94	20.72	19.41
1892	382,452	7,746	4,074	7,988	20.25	21.30	20.88
1893	385,413	8,348	4,090	7,663	22.17	21.22	20.35

Table No. 3 shows the population, number of births, marriages, deaths, with the birth-rate, marriage-rate, and death-rate to each 1,000 of the population, for the years 1884 to 1893, inclusive. It will be seen by this table that there has in the last two years been an increase in the totals, with the exception of deaths. The number of births reported is greater than for any previous year. This is probably due largely to more complete returns in 1893 than in any previous year.

BIRTHS.

There were returned for the year 1893, 8,348 births, or 620 more than was reported the previous year.

The birth-rate for the state was 22.17 to each 1,000 of the population for the entire state.

TABLE No. 4.

Births in Cities for 1893, *with rate per* 1,000.

CITIES.	Population of 1890.	Births.	Birth-rate per 1,000.
Portsmouth	9,827	175	17.81
Dover	12,790	301	23.53
Concord	17,004	448	26.35
Manchester	44,126	1,150	26.06
Nashua	19,311	698	36.15
Keene	7,446	151	20.28
Rochester	7,396	172	23.26
Laconia	6,143	214	34.83
Somersworth	6,207	208	33.51

Table No. 4 gives the population, number of births, and birth-rate per 1,000 of the population for the several cities of the state. It will be seen by this table that the highest birth-rate is to be credited to Nashua—the rate of 36.15 to each 1,000 of the population. The lowest birth-rate was in Portsmouth with only 17.81 to each 1,000 of the population.

TABLE No. 5.

Percentage of American and Foreign Births, by Counties, 1893.

COUNTIES.	PARENTS.			Births with parentage not stated.
	American born.	Foreign born.	One foreign born.	
Rockingham	62.79	20.00	13.96	29
Strafford	40.18	44.95	13.01	18
Belknap	50.42	29.46	12.46	27
Carroll	68.91	16.03	9.61	17
Merrimack	49.57	34.05	13.66	29
Hillsborough	39.21	42.71	14.22	95
Cheshire	53.53	26.62	15.34	30
Sullivan	62.50	18.27	14.42	15
Grafton	70.28	11.11	13.75	35
Coös	29.76	47.02	18.89	40
Total for state	48.56	33.27	11.76	335

Table No. 5 represents the percentage of parents by nativity. This table shows that less than one half (48.56) of the children born in the state during the year were of American parentage; 33.27 per cent. of the children born in the state in 1893 were of foreign parentage.

This table, in connection with the census statistics of nativity of the population of the state, offers a very interesting and instructive study.

MARRIAGES.

The number of marriages returned for the year 1893 was 4,090, the largest number ever reported in a single year, and 16 larger than was returned the previous year.

TABLE No. 6.

Marriage-rates for 1882 *to* 1893, *inclusive.*

YEARS.	Marriages.	Persons married to 1,000 living.	Number living to one married.
1882	3,433	19.44	103
1883	3,495	19.68	102
1884	3,292	18.34	109
1885	3,180	17.56	114
1886	3,324	18.22	109
1887	3,495	19.00	105
1888	3,379	18.22	109
1889	3,621	19.36	103
1890	3,621	19.22	103
1891	3,904	20.72	97
1892	4,074	21.30	93
1893	4,090	21.22	94
Average	3,575	18.35	103

Table No. 6 shows the total number of marriages from 1882 to 1893, inclusive; also the percentage of persons married to each 1,000 of the living population, together with the number living to each marriage.

The average number of marriages for the past eleven years is 3,575 annually.

TABLE No. 7.

Marriages for eleven years, 1883 to 1893, inclusive, by Ages.

SEX.	Under 20.	20 to 25.	25 to 30.	30 to 35.	35 to 40.	40 to 45.	45 to 50.	50 to 55.	55 to 60.	60 to 70.	70 to 80.	Over 80.	Not stated.
Males....	1,876	14,705	10,408	4,648	2,432	1,426	981	750	535	755	265	19	674
Females.	10,625	14,810	6,419	2,720	1,572	935	636	422	238	261	41	1	794

TABLE No. 8.

Marriages according to Nativity.—Percentages 1882 to 1892, inclusive.

YEARS.	Both Americans.	Both foreign.	Groom American.	Bride American.	Not stated.
1882	65.74	12.09	5.13	4.14	12.90
1883	66.15	12.62	5.38	4.18	11.67
1884	69.44	12.91	5.32	3.92	8.41
1885	69.75	11.57	4.97	4.84	8.87
1886	67.87	13.39	6.50	5.08	7.16
1887	65.72	15.79	6.07	5.49	6.93
1888	64.22	17.16	7.10	6.31	5.21
1889	64.32	17.04	7.40	6.55	4.69
1890	62.19	18.58	7.53	7.15	4.53
1891	62.45	18.49	7.38	6.74	4.94
1892	59.82	21.01	7.81	6.82	4 54
1893	60.88	18.80	10.68	8.09	1.54

TABLE No. 9.

Proportion of American to Foreign Born Persons Married, for 1882 *to* 1893, *inclusive.*

YEARS.	American-born.	Foreign-born.
1882	80.80	19.20
1883	80.30	19.70
1884	80.86	19.14
1885	81.92	18.08
1886	79.34	20.66
1887	76.82	23.18
1888	74.82	25.18
1889	74.80	25.20
1890	65.14	34.86
1891	73.12	26.87
1892	70.33	29.67
1893	71.37	28.63

Table No. 9 represents the proportion of American to foreign-born persons married from 1882 to 1893, inclusive.

This table is exceedingly instructive from the fact that it shows a progressive diminution in the number of children born of American parents, with an increase of children of foreign parentage.

By referring to table No. 5 it will be seen that, although 71.37 per cent. of the marriages were among American-born, only 48.56 per cent. of the children born for the year were of American parentage. On the other hand, 28.63 per cent. of the marriages were among foreign-born, with a birth record of 33.27 per cent. of children of foreign parentage.

In Strafford, Hillsborough, and Coös counties, the number of children of foreign parents was greater for the year 1893 than the number of American-born.

DIVORCES.

TABLE No. 10.

Ratio of Divorces to Marriages from 1882 *to* 1893, *inclusive.*

YEARS.	Number of marriages.	Marriage-rate per 1,000.	Number of divorces.	Ratio of divorces to marriages.
1882	3,433	19.44	314	1 to 10.93
1883	3,495	19.68	273	1 to 12.80
1884	3,292	18.34	315	1 to 10.45
1885	3,180	17.56	291	1 to 10.92
1886	3,324	18.22	382	1 to 8.70
1887	3,495	19.00	325	1 to 10.75
1888	3,379	18.22	386	1 to 8.75
1889	3,621	19.22	368	1 to 9.83
1890	3,621	19.22	382	1 to 9.48
1891	3,904	20.72	412	1 to 10.55
1892	4,074	21.30	347	1 to 11.74
1893	4,090	21.22	398	1 to 10.27

Table No. 10 shows the total number of divorces decreed from 1882 to 1893, inclusive, by counties, also the ratio of divorces to marriages for the same period. In the year 1893 one divorce was decreed to each 10.27 marriages, this being a slight decrease over the ratio of the two years previous. As a whole there has not been any very marked variation of ratios for the past eleven years.

Additional tables relating to the alleged causes of divorce for the year 1893, and also for the period of 11 years, may be found in the registration report.

DEATHS.

The number of deaths returned for the year 1893 was 7,663, 325 less than was returned the previous year.

The death-rate per 1,000 of the population for the year is 20.35.

TABLE No. 11.

Deaths and Death-rates from 1884 to 1893, inclusive.

YEARS.	Deaths registered.	Deaths to 1,000 of population.*	Population.*
1884	1,694	16.26	358,845
1885	6,201	17.13	361,806
1886	6,426	17.61	364,767
1887	6,479	17.61	367,728
1888	6,854	18.48	370,689
1889	6,696	17.91	373,650
1890	7,368	19.56	376,530
1891	7,310	19.41	379,491
1892	7,988	20.88	382,452
1893	7,663	20.35	385,413
Average	6,918	18.52	.....

*Population estimated for all but census years.

Table 11 represents the total number of deaths registered each year from 1884 to 1893, inclusive, with the percentage for each year to each 1,000 of the population. This table is liable to give an erroneous impression if it is not borne in mind that the progressive increase in the percentage column is due rather to a more accurate and complete registration from year to year than to any other cause. In the earlier years represented in the table the registration of deaths was not so complete as it is now.

TABLE No. 12.

Mortality of Males and Females compared, 1884 *to* 1893, *inclusive.*

YEARS.	Male decedents.	Female decedents.	Male decedents to 100 female decedents.	Death-rate of males to 1,000 male population.	Death-rate of females to 1,000 of female population.
1884	3,034	3,122	97.18	17.79	17.69
1885	2,948	3,194	92.29	17.28	18.09
1886	3,155	3,212	98.20	18.50	18.20
1887	3,174	3,267	97.15	18.61	18.51
1888	3,419	3,382	101.09	20.04	19.16
1889	3,253	3,389	95.98	19.07	19.20
1890	3,692	3,624	101.87	21.65	20.53
1891	3,557	3,453	103.01	19.60	17.65
1892	3,981	3,990	99.77	21.33	21.00
1893	3,827	3,812	99.61	20.51	20.42
Average	3,404	3,444	98.61	19.44	19.04

Table No. 12 exhibits the mortality of males and females compared for the years 1884 to 1893, inclusive. It will be seen by this table that the mortality among the females was slightly greater than among the males, the percentage for the period given of the male decedence to each 100 females being 98.61; and for the year 1893, 99.61.

The death-rate of the males to each 1,000 of the male population for the 10 years given in the table was 19.44.

The death rate of females to each 1,000 of the female population for the same period was 19.04.

TABLE No. 13.

*Deaths at Age Periods, by Percentages, from 1883 to 1893, inclusive.**

YEARS.	Under 1.	1 to 5.	5 to 10.	10 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	Over 60.
1883.....	14.33	7.58	2.56	5.55	8.58	6.73	6.22	7.64	37.93
1884.....	16.22	7.36	2.61	5.30	7.93	6.26	6.33	7 75	38.38
1885.....	15.98	7.14	2.11	4.42	7.50	6.71	6.71	7.76	40.09
1886.....	16.89	7.70	2.86	4.82	7.73	6.55	6.12	7.47	38.86
1887.....	17.64	7.26	2.05	4.89	6.96	6.25	6.56	7.72	39.70
1888.....	19.23	7.63	2.04	4.93	7.07	6.00	5.53	7.57	38.72
1889.....	19.44	7.71	2.66	4.64	6.56	6.15	5.93	7.63	38.40
1890.....	16.23	6.67	1.99	4.28	7.04	7.42	6.62	9.17	40.49
1891.....	18.30	7.08	2.55	4.40	6.95	6.01	6.29	8.15	40.25
1892.....	16.17	6.64	2.18	4.39	6.70	6.63	6.60	8.76	41.77
1893.....	17.83	7.13	1.93	4.32	7.20	6.62	6.94	8.10	39.86

* Not including those with age not stated, premature and still births.

Table No. 13, is interesting in showing how uniformly the mortality by age periods occurs, even when distributed over a series of years.

TABLE No. 14.

*Deaths at Different Periods, compared with the number Living at the Same Period, 1893.**

	1893.	Persons living at same ages, census of 1880.	Death-rate per 1,000.
Under 1 year	1,296	6,141	211.94
Under 5 years	1,812	30,573	59.26
Twenty to thirty years	521	63,252	8.24
All others	5,025	253,166	19.85
All ages	7,358	376,530†	19.54

* Excluding still births and premature births. † Census of 1890.

Table No. 14 shows the number of deaths at different age periods compared with the number of living at the same period, for 1893. It shows the death-rate per one thousand of the population under one year of age to the living persons of the same age period to be 211.04 as against 199.47 for the previous year, showing a slight increase. Under 5 years of age, 59.26 as against 56.47 for the previous year; between 20 and 30, 8.24 as against 7.99 for 1892. All others 19.85 in 1893 as against 21.59 in 1892. For all ages the rate was 19.54 in 1893 as against 20.44 in the preceding year.

TABLE No. 15.

*Deaths of Children under Five Years of Age, by Seasons, 1893.**

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Months	109	104	119	131	126	98	229	301	247	129	95	115
Quarters		332			355			777			339	
Percentages		18.41			19.69			43.10			18.80	
Half-years			687						1,116			
Percentages			38.10						61.90			
Total deaths					1,803							

* Not including deaths with month not stated, premature and still births.

Table No. 15 represents the mortality of children under 5 years of age, by seasons, for the year 1892. The highest mortality was in the quarter including July, August, and September, and was 43.10 per cent. as against 37.66 for the previous year. The next highest rate was in the second quarter of the year, at 19.69, followed by the fourth quarter, at 18.80, and the first quarter at 18.41.

The total mortality by half years was as follows:

First half of the year, 687.
Last half of the year, 1,116.

TABLE No. 16.

Total Deaths by Seasons, 1893.*

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Months.....	584	571	571	638	646	496	684	718	627	551	515	736
Quarters.....		1,726			1,780			2,029			1,802	
Percentages..		23.53			24.26			27.65			24.56	
Half-years....			3,506						3,831			
Percentages..			47.79						52.21			
Total deaths..						7,337						

* Not including deaths with month not stated, premature and still births.

Table No. 16 gives the total number of deaths of all ages by seasons for the year 1893. There was a total of 7,337 deaths as against 7,682 for the previous year.

By quarters the death-rate was the heaviest in the third quarter of the year, which rate is augmented by a large death-rate from intestinal diseases among children. For the other quarters of the year the mortality variation is exceedingly small.

TABLE No. 17.

Mortality from Prominent Zymotic Diseases from 1884 *to* 1893, *inclusive.*

YEARS.	DISEASES.												
	Cholera infantum.	Croup.	Diarrhœa.	Diptheria.	Dysentery.	Erysipelas.	Fever, cerebro-spinal.	Fever, Typhoid.*	Measles.	Pertussis.	Scarlatina.	Septicæmia.	Total.
1884.....	266	49	53	110	80	19	25	137	3	14	52	27	835
1885.....	219	74	59	78	40	25	20	136	45	25	53	38	812
1886.....	362	64	38	156	79	18	26	194	18	26	21	27	1,029
1887.....	336	84	38	177	53	20	34	134	39	21	26	30	992
1888.....	370	94	50	103	63	36	34	150	55	23	34	29	1,041
1889.....	353	88	68	210	67	27	25	161	16	47	18	29	1,109
1890.....	399	64	50	164	48	29	....	143	9	26	16	57	1,005
1891.....	486	56	46	160	51	43	....	170	19	27	13	38	1,109
1892.....	366	45	53	134	42	39	19	109	24	37	27	47	942
1893.....	423	36	50	63	63	29	3	121	32	23	52	43	938
Average	358	65	51	136	59	29	15	145	26	27	31	36	981

* Including fever, bilious, intermittent, malarial, and typho-malarial fevers.

TableNo. 17 shows the mortality from the more prominent zymotic diseases from 1884 to 1893, inclusive. The total number of deaths coming under this class for the year 1893 is 938—practically the same as the preceding year. The largest number of deaths in this table are from cholera infantum, to wit: 423 for the entire state, which, with the exception of the year 1891, is the largest number of deaths ever returned from this cause.

Croup is responsible for 36 deaths, a figure lower than was ever before returned.

Diarrhœa is charged with 50 deaths, the average for the ten years included in the table being 51.

Diphtheria, with only 63 deaths for the year, is a record far below that heretofore recorded in any one year, and is less than one half the number reported for the previous year. The average death-rate for the ten years referred to is 136.

Dysentery is responsible for 63 deaths in 1893.

Erysipelas 29 deaths, which is the exact average for the entire period covered by the table.

Cerebro-spinal fever is chargeable with only three deaths far 1893 as against 19 the previous year.

There were 121 deaths returned from typhoid fever,—a slight increase over the preceding year, but considerably lower than the average for the ten years.

Measles caused 32 deaths as against 24 the preceding year, with an average of 26 for ten years.

Whooping cough caused 23 deaths in 1893, the average given in the table being 27.

Scarlet fever was responsible for 52 deaths in 1893 as against 27 the preceding year, and is a larger number than has been reported since 1885. The average annual mortality from this disease for the ten years included in the table is 31.

Septicæmia was the cause of 43 deaths in 1893 as against 47 the previous year.

TABLE 18.

Mortality from Principal Constitutional Diseases from 1884 *to* 1893, *inclusive.*

YEARS.	DISEASES.										
	Dropsy.	Anæmia.	Cancer.	Mortification.	Rheumatism.	Scrofula.	Tabes mesenterica.	Phthisis (pulmonary).	Hydrocephalus.	Tubercular meningitis.	Total.
1884	80	43	213	18	26	26	4	865	27	*	1,302
1885	90	32	212	24	28	22	2	857	25	*	1,292
1886	83	28	206	27	47	16	11	809	33	19	1,279
1887	79	17	218	29	47	16	7	766	23	16	1,218
1888	75	34	203	22	43	21	14	742	30	13	1,197
1889	62	40	213	21	43	22	13	651	21	24	1,110
1890	53	28	276	33	30	15	6	825	13	30	1,309
1891	41	41	213	2	24	11	19	695	22	15	1,083
1892	43	35	235	24	25	17	10	736	16	24	1,165
1893	49	26	283	30	27	14	21	737	23	27	1,237
Average	65	32	227	23	34	18	11	768	23	17	1,219

* Not classed separately.

Table No. 18 shows the mortality from the principal constitutional diseases for the ten years included in the table.

Phthisis (which no longer belongs under this classification) was responsible for 737 deaths in 1893—one more than was returned in 1892, as against an average of 768 for the period covered by the table.

There were 283 deaths chargeable to cancer in 1893 as against 235 for the previous year. It will be noticed that there is a remarkable uniformity in the number of deaths from cancer

from year to year, although the return for 1893 is the highest yet recorded.

TABLE NO. 19.

Mortality from Principal Local Diseases from 1884 *to* 1893, *inclusive.*

YEARS.	DISEASES.												
	Apoplexy.	Paralysis.	Convulsions.	Cephalitis.*	Brain disease.	Heart disease.	Bronchitis.	Pneumonia.	Enteritis.	Gastritis.	Peritonitis.	Liver disease.	Bright's disease, nephritis and other kidney diseases.	Total.
1884	192	248	99	120	134	507	78	436	69	44	61	63	140	2,191
1885	206	278	93	153	122	489	112	504	57	49	44	63	157	2,307
1886	220	249	71	141	127	510	81	466	53	66	48	71	143	2,246
1887	210	253	64	117	121	552	114	556	57	54	48	69	163	2,384
1888	243	273	88	143	112	575	142	628	39	51	63	72	154	2,634
1889	259	196	76	151	126	564	127	582	56	42	57	56	200	2,492
1890	263	251	65	186	140	568	194	703	63	60	51	56	201	2,801
1891	283	241	78	161	130	572	180	673	73	47	68	55	182	2,743
1892	308	309	78	188	140	571	217	890	72	68	94	48	222	3,105
1893	331	239	76	208	122	605	191	685	76	56	78	65	194	2,926
Average	251	244	79	155	127	551	144	612	62	54	61	62	176	2,583

* Meningitis and cerebritis included.

Table No. 19 gives the mortality of the principal local diseases from 1884 to 1893, inclusive. The total number of deaths returned under this classification in 1893 was 2,926 as against 3,105 for the previous year.

The chief cause of mortality in these tables is pneumonia, which is chargeable with 685 deaths in 1893 as against 890 for the previous year. This return shows a large falling off

over the death-rate of 1892; but the rate is still a little higher than the average for ten years.

Heart disease shows 605 deaths in 1893 as against 571 for the previous year.

Apoplexy shows 331 deaths in 1893 as against 308 in 1892. The average number of deaths from this cause for ten years is 251.

Bright's disease caused 194 deaths in 1893 as against 222 the previous year.

TABLE No. 20.

Mortality from Principal Developmental Diseases from 1884 *to* 1893, *inclusive.*

YEARS.	DISEASES.									
	Still-born.	Debility, infantile.	Debility, premature birth.	Malformation.	Teething.	Innutrition.	Childbirth.	Old age.	Atrophy and debility.	Total.
1884	156	*	35	13	19	*	27	457	144	851
1885	145	*	39	13	13	*	31	420	167	828
1886	140	68	54	12	16	50	30	468	98	936
1887	166	56	63	10	20	76	27	449	78	945
1888	189	91	69	19	20	81	20	407	112	1,008
1889	220	79	68	24	18	63	27	426	104	1,029
1890	197	113	65	11	15	95	28	410	204	1,138
1891	213	104	73	18	14	90	23	385	208	1,128
1892	205	101	82	21	11	81	19	441	75	1,036
1893	203	90	102	12	12	100	22	402	94	1,037
Average	183	70	65	15	16	64	25	426	128	994

* Classed with atrophy and debility.

Table No. 20 shows the number of decedents from the principal developmental diseases for the ten years given.

TABLE No. 21.

Mortality from Twenty Prominent Causes from 1884 *to* 1893, *inclusive.*

CAUSES OF DEATH.	Deaths in 1893.	ORDER OF FATALITY.									
		1893	1892	1891	1890	1889	1888	1887	1886	1885	1884
Consumption	737	1	2	1	1	1	1	1	1	1	1
Pneumonia	685	2	1	2	2	2	2	3	5	2	5
Heart disease	605	3	3	3	3	3	3	2	2	4	2
Apoplexy and paralysis	570	4	4	4	4	4	4	4	3	3	4
Old age	402	6	5	6	5	5	5	5	4	5	3
Cholera infantum	423	5	6	5	6	6	6	6	6	6	6
Cancer	283	8	8	8	7	7	7	7	7	7	7
Diphtheria	63	20	13	13	12	8	15	9	10	18	13
Accident and negligence	292	7	9	7	8	9	8	8	9	8	11
Typhoid fever*	121	13	15	11	13	10	9	10	8	9	10
Cephalitis†	208	9	11	12	11	11	10	12	11	10	12
Diarrhea and dysentery	113	14	17	18	17	12	12	14	13	15	9
Bright's disease	123	11	12	14	16	13	20	15	15	14	14
Bronchitis	191	10	10	10	10	14	11	13	17	12	17
Brain disease	122	12	14	16	14	15	13	11	12	11	8
Atrophy and debility	94	16	20	9	9	16	14	18	14	13	18
Croup	36	21	21	21	21	17	16	16	21	19	22
Debility, infantile	90	18	16	17	15	18	17	23	22	‡	....
Convulsions	76	19	19	20	20	19	18	21	19	16	15
Innutrition	100	15	18	19	18	20	19	19	23	‡	....
Influenza	91	17	7	15	19	....	....	....	....	....	....

* Fever, bilious fever, malarial, intermittent, and typho-malarial fevers included
† Meningitis and cerebritis included. ‡ Classed with atrophy and debility.

Table No. 21 and diagram No. 1 show the mortality from twenty of the most prominent causes of death from 1884 to 1893 inclusive. In these tables consumption stands at the head, as it always has, with the single exception of 1892, when pneumonia ranked first.

Consumption is responsible for 737 deaths in 1893, while the average for ten years has 768 deaths. The table alluded to shows the order of fatality from the diseases given for the period named. A further consideration of some of these diseases will be found in the following tables.

DIAGRAM NO. 1.—SHOWING THE COMPARATIVE MORTALITY, BY ABSOLUTE NUMBER OF DECEDENTS FROM TWENTY PROMINENT CAUSES OF DEATH DURING YEAR ENDING DECEMBER 31, 1893.



TABLE No. 22.

Mortality from Consumption from 1884 *to* 1893, *inclusive.*

YEARS.	Deaths.	Percentages of deaths to deaths from all causes.	Death-rate per 10,000 living population.
1884	865	14.01	24.18
1885	857	13.82	23.68
1886	809	12.58	22.17
1887	766	11.82	20.82
1888	742	10.82	20.01
1889	651	9.72	17.42
1890	825	11.19	21.91
1891	695	9.51	18.31
1892	736	9.21	19.24
1893	737	9.62	19.13

Table No. 22 shows the mortality from consumption, the percentages of deaths to deaths from all causes, and the death-rate for every 10,000 of the living population from 1884 to 1893 inclusive.

TABLE No. 23.

Deaths from Pulmonary Consumption, by Seasons, Ages, and Nativity, 1893, for the City of Manchester.

Months	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.	American.	Foreign.	Not stated.
	11	5	11	8	5	7	12	3	6	8	8	7				
Quarters	27			20			21			23			91			
Ages	Under 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Not stated.					
	9	3	8	27	21	10	6	6			1					
Nativity	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	....	48	41	2
Males	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	43	..	..	..
Females	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	48	..	..	..

Table No. 23 gives the deaths from consumption by season, age, and nativity, in the city of Manchester for 1893. Total number of deaths from this cause was 91, exactly the same as was reported the previous year. Of the decedents, 43 were males, amd 48 females; 48 were American born, 41 foreign born, and 2 nativity not stated. The fatality by months was as follows: 7 in June and December; July, 12; January and March, 11 each; April, October, and November, 8 each; September, 6; February and May, 5 each; August, 3.

Twenty-seven were between 20 and 30 years of age; 21, between 30 and 40; 10 between 40 and 50; 9 under 10 years of age; 8 between 15 and 20; 6 between 50 and 60; 6 between 60 and 70; 3 between 10 and 15; and 1, age not stated.

TABLE No. 24.

Deaths from Pulmonary Consumption by Seasons, Ages, and Nativity, 1893, for the City of Concord.

Months	5 January.	1 February.	3 March.	5 April.	4 May.	4 June.	1 July.	7 August.	3 September.	3 October.	3 November.	1 December.	Total.	American.	Foreign.	Not stated.
Quarters	9			13			11			7			40			
Ages	1 Under 10.	1 10 to 15.	2 15 to 20.	16 20 to 30.	7 30 to 40.	5 40 to 50.	4 50 to 60.	3 60 to 70.	1 70 to 80.	Over 80.	Not stated.					
Nativity	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	....	31	9	..
Males	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14	..	..	..
Females	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	26	..	..	..

Table No. 24 is a record of consumption in the city of Concord for the year 1893. There was a total of 40 deaths from this disease, 14 males and 26 females; 31 were American born, and 9 foreign born.

Seven died in August; 5 in January and April; 4 in May and June; 3 in March, September, October, and November; 1 in February, July, and December.

Of the ages, 16 were between 20 and 30; 7 between 30 and 40; 5 between 40 and 50; 4 between 50 and 60; 3 between 60 and 70; 1 under 10; 1 between 10 and 15; and 1 between 70 and 80.

TABLE No. 25.

Deaths from Pulmonary Consumption, by Seasons, Ages, and Nativity, 1893, for the City of Nashua.

Months	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.	American.	Foreign.	Not stated.
	3	1	1	1	3	1	5	1	4	1	4	5				
Quarters	5			5			10			10			30			
Ages	Under 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Not stated.					
	3		3	11	5	2	3		1	1	1					
Nativity	.....			.....			.....			.....			.....	12	12	6
Males	.....			.....			.....			.....			16	..	..	..
Females	.....			.....			.....			.....			14	..	..	..

Table No. 25 represents the mortality from consumption in Nashua for 1893, the total number being 30, 16 males and 14 females. Twelve were American born, 12 foreign born, and 6 nativity not stated.

There were 5 deaths in July and December; 4 in September and November; 3 in January and May; and 1 in February, March, April, June, August, and October.

Eleven of the decedents were between 20 and 30; 5 between 30 and 40; 3 under 10; 3 between 15 and 20; 3 between 50 and 60; 2 between 40 and 50; 1 between 70 and 80; 1 over 80, and 1 age not stated.

TABLE No. 26.

Deaths from Pulmonary Consumption, by Seasons, Ages, and Nativity, 1893, for the City of Portsmouth.

Months	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.	American.	Foreign.	Not stated.
	1	2	1	2	2	3	5	1	2		1	4				
Quarters		4			7			8			5		24			
Ages	Under 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Not stated.					
	1		3	4	6	5	2	2	1							
Nativity	.....												....	17	6	1
Males	.....												17	..	..	..
Females	.....												7	..	..	..

In Portsmouth the deaths from consumption for 1893 are represented in table No. 26. There was a total of 24 deaths, 17 males and 7 females. Seventeen were American born, 6 foreign born, and 1 nativity not stated.

Five died in July ; 4 in December ; 3 in June ; 2 in February, April, May, and September ; 1 in January, March, August, and November.

Six decedents were between 30 and 40 years of age ; 5 between 40 and 50 ; 4 between 20 and 30 ; 3 between 15 and 20 ; 2 between 50 and 60 ; 2 between 60 and 70 ; 1 under 10 ; 1 between 70 and 80.

TABLE No. 27.

Deaths from Pulmonary Consumption, by Seasons, Ages, and Nativity, 1893, for the City of Dover.

Months	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.	American.	Foreign.	Not stated.
	1	5	6	3	4	2	2	3	5	3	5	4				
Quarters	12			9			10			12			43			
Ages	Under 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Not stated.					
	2		5	16	11	4	4	1								
Nativity														32	9	2
Males													21			
Females													22			

Table No. 27 shows the deaths from consumption in Dover for the year 1893, there being a total of 43, 21 males and 22 females. Of the decedents 32 were American born, 9 foreign born, and 2 nativity not stated.

Six died in March; 5 in February, September, and November; 4 in May and December; 3 in April, August, and October; 2 in June and July; 1 in January.

Sixteen were between 20 and 30 years of age; 11 between 30 and 40; 5 between 15 and 20; 4 between 40 and 50; 4 between 50 and 60; 2 under 10; 1 between 60 and 70.

TABLE No. 28.

Deaths from Pulmonary Consumption, by Seasons, Ages, and Nativity, 1893, for the City of Keene.

Months	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.	American.	Foreign.	Not stated.
	1	2		1	2	4	2				1	2				
Quarters		3			7			2			3		15			
Ages	Under 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Not stated.					
	1		2	3	6	1	1	1								
Nativity														14	1	
Males													7			
Females													8			

Table No. 28 shows the deaths in Keene from consumption in 1893, the total number being 15, 7 males and 8 females. Fourteen were American born, and 1 foreign born.

Four died in June; 2 in February, May, July, and December; 1 in January, April, and November.

Six were between 30 and 40 years of age; 3 between 20 and 30; 2 between 15 and 20; 1 under 10; 1 between 40 and 50; 1 between 50 and 60, and 1 between 60 and 70.

TABLE No. 29.

Deaths from Pulmonary Consumption, by Seasons, Ages, and Nativity, 1893, for the City of Rochester.

Months	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.	American.	Foreign.	Not stated.
	2				1		1		1	1						
Quarters		2			1			2			1		6			
Ages	Under 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Not stated.					
				3	1		1	1								
Nativity														5	1	
Males													4			
Females													2			

Table No. 29 represents the deaths from consumption in Rochester for the year 1893, the total being 6, 4 males and 2 females. Five were American born, 1 foreign born.

Two died in January; 1 in May, July, September, and October.

Three of the decedents were between 20 and 30; 1 between 30 and 40; 1 between 50 and 60; 1 between 60 and 70.

TABLE No. 30.

Deaths from Pulmonary Consumption, by Seasons, Ages, and Nativity, 1893, for the City of Laconia.

Months	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.	American.	Foreign.	Not stated.
	2	2	1	2	1	1	2		3	2	2	4				
Quarters	3			4			5			8			20			
Ages	Under 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Not stated.					
	2	1	1	8	2	2		2	2							
Nativity													....	12	6	2
Males													8	..	..	..
Females													12	..	..	

Table No. 30 shows the deaths in Laconia from consumption in 1893, a total of 20, 8 males and 12 females. Twelve were American born, 6 foreign born, and 2 nativity not stated.

Four died in December; 3 in September; 2 in January, April, July, October, and November; 1 in March, May, and June.

Eight were between 20 and 30; 2 under 10; 2 between 30 and 40; 2 between 40 and 50; 2 between 60 and 70; 2 between 70 and 80; 1 between 10 and 15; 1 between 15 and 20.

TABLE No. 31.

Deaths from Pulmonary Consumption, by Seasons, Ages, and Nativity 1893, for the City of Somersworth.

Months	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.	American.	Foreign.	Not stated.
		1	3		1			3	1	2	1	2				
Quarters		4			1			4			5		14			
Ages	Under 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Not stated.					
	3	2	1	2	2	1	1	1	1							
Nativity	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	....	7	7	
Males	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6			
Females	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8			

Table No. 31 shows the deaths from consumption in 1893 for Somersworth, a total of 14—6 males and 8 females. Seven American born and 7 foreign born.

Three died in March; 3 in August; 2 in October; 2 in December; 1 in February, May, September, and November.

Three were under 10 years of age; 2 between 10 and 15; 2 between 20 and 30; 2 between 30 and 40; 1 between 15 and 20; 1 between 40 and 50; 1 between 50 and 60; 1 between 60 and 70; 1 between 70 and 80.

PNEUMONIA.

TABLE No. 32.

Mortality from Pneumonia, by Counties, from 1884 to 1893, inclusive.

COUNTIES.	YEARS.										Average.
	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	
Rockingham	45	63	77	70	83	66	90	77	96	88	76
Strafford	39	48	37	46	52	38	80	73	96	65	57
Belknap	18	24	25	44	50	37	42	28	55	31	35
Carroll	30	27	15	33	46	49	37	42	50	19	34
Merrimack	50	72	60	85	73	86	94	73	137	95	82
Hillsborough	110	128	112	128	129	131	158	185	175	159	141
Cheshire	36	52	39	55	55	52	44	54	86	64	54
Sullivan	21	22	23	22	30	31	32	31	62	45	32
Grafton	66	48	54	52	77	64	74	53	84	71	64
Coös	21	20	24	21	33	26	52	57	49	48	35
Total	436	504	466	556	628	582	703	673	890	685	612

Table No. 32 gives the mortality from pneumonia, by counties, from 1884 to 1893, inclusive, with the averages for the entire period. The total number of deaths from this disease in 1893 was 685, which is 205 less than was returned the previous year, but which number is still higher than the average for the period covered by the entire table. The influence of influenza was responsible for the high rate of mortality from pneumonia in 1892, and probably accounts for the relatively high death-rate from this disease since 1889.

TABLE No. 33.

Mortality from Pneumonia by Months and Quarters, from 1884 *to* 1893, *inclusive.*

YEARS.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Not stated.
1884	55	55	51	52	32	13	14	11	5	28	51	67	2
1885	53	59	101	95	35	25	13	10	10	33	38	32	...
1886	32	44	73	51	51	33	22	18	18	24	46	54	...
1887	71	73	85	85	49	17	13	13	14	34	47	54	1
1888	72	95	75	73	76	24	16	23	21	43	36	72	2
1889	69	66	79	102	51	22	15	19	16	53	41	49	...
1890	213	74	69	43	47	35	18	9	23	23	69	79	1
1891	73	60	82	72	95	41	13	7	14	23	37	152	4
1892	384	110	83	86	57	21	5	11	19	21	34	54	5
1893	75	71	95	87	67	38	18	14	14	24	48	133	1
Total	1,097	707	793	746	560	269	147	135	154	306	447	756	
	2,587			1,575			436			1,499			

Table 33 gives the mortality from pneumonia, by months and quarters, for the ten years covered by the table. The largest mortality for the year 1893 was in December, it being considerably more than double the death-rate from the same disease in the preceding December. The effect of influenza upon the mortality of this disease is apparent in the study of the death-rate by months as exhibited in the above table.

BRAIN DISEASES.

TABLE No. 34.

Mortality from Brain Diseases from 1884 *to* 1893, *inclusive.*

YEARS.	DISEASES.						
	Cephalitis.*	Apoplexy.	Paralysis.	Insanity.	Convulsions.	Brain diseases.	Total.
1884	120	192	248	22	99	134	815
1885	133	206	278	27	93	122	859
1886	141	220	249	24	71	127	832
1887	117	210	253	25	64	121	790
1888	143	243	273	37	88	112	896
1889	151	259	196	35	76	126	843
1890	186	263	251	28	65	140	933
1891	161	283	241	44	78	130	917
1892	173	308	209	33	78	140	941
1893	208	331	239	26	76	122	1,002
Average	153	251	244	30	79	127	883

* Meningitis and Cerebritis included.

Table No. 34 shows the mortality from brain diseases from 1884 to 1893, inclusive. There is an increased mortality from certain diseases of the brain, notably in cephalitis, under which are classed the inflammatory diseases of the brain. Apoplexy exhibits a higher death-rate than heretofore. The total number of deaths chargeable to brain diseases for the year 1893 is 1,002, the highest number returned for the years embraced in the table.

DIARRHŒAL DISEASES.

TABLE No. 35.

Mortality from Diarrhœal Diseases from 1884 *to* 1893, *inclusive.*

YEARS.	DISEASES.					Total of diarrhœal diseases.
	Cholera infantum.	Cholera morbus.	Diarrhœa.	Dysentery.	Enteritis.	
1884	266	21	52	80	69	488
1885	219	20	40	40	57	376
1886	362	14	38	79	53	546
1887	336	16	38	53	57	500
1888	370	8	50	63	39	530
1889	353	12	68	67	56	556
1890	399	12	.....	50	63	524
1891	486	16	46	51	73	672
1892	366	17	53	42	72	550
1893	423	20	50	63	76	632
Average	358	16	43	59	61	574

Table No. 35 gives the mortality from diarrhœal diseases for the past ten years. Cholera infantum, which is responsible for the largest number of deaths in this group, shows a higher mortality than for the previous year, and considerably higher than the average for the ten years included in the table. The total number of deaths under this class for the year is 632, the average for the ten years being 574.

CHOLERA INFANTUM.

TABLE No. 36.

Mortality from Cholera Infantum from 1884 *to* 1893, *inclusive.*

YEARS.	Deaths.	Percentages of deaths to deaths from all causes.	Death-rates per 10,000 living (estimated population.)
1884	266	4.29	7.41
1885	219	3.53	6.05
1886	362	5.63	9.92
1887	336	5.18	9.13
1888	370	5.39	9.98
1889	353	5.27	9.44
1890	399	5.41	10.59
1891	486	6.64	12.08
1892	366	4.58	9.57
1893	423	5.52	10.97
Average	358	5.14	9.51

In Table No. 36 is exhibited the mortality from cholera infantum for ten years, together with percentages of deaths from this disease to the total number of deaths, and also its death-rate per 10,000 of the living population. The average number of deaths from cholera infantum during this ten year period is 358 annually, while for the year 1893 it was 423, a figure which has been exceeded only once during the period embraced in the table.

TABLE No. 37.

Mortality from Cholera Infantum, by ages, from 1884 *to* 1893, *inclusive.*

YEARS.	Under 1.	1 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Unknown.	Total.
1884.....	214	48	....	....	....	....	1	....	1	....	....	..	2	266
1885.....	186	33	....	....	....	....	....	....	....	....	....	..	..	219
1886.....	283	77	2	....	....	....	....	....	....	....	....	..	..	362
1887.....	284	51	....	....	....	....	....	....	....	....	....	..	1	336
1888.....	298	70	....	....	....	....	....	....	....	....	....	..	2	370
1889.....	297	54	1	....	....	....	....	....	....	....	....	..	1	353
1890.....	343	52	4	....	....	....	....	....	....	....	....	..	..	399
1891.....	409	74	3	....	....	....	...	....	....	....	...	..	..	486
1892.....	320	41	4	1	....	....	....	....	....	....	....	..	..	366
1893.....	369	52	2	....	....	....	....	....	....	....	....	..	..	423

The above table shows the mortality from cholera infantum by years and age periods from 1884 to 1893 inclusive. It will be seen by this table that cholera infantum is almost wholly a disease of early infancy, the majority of deaths occurring from it being in children under one year of age.

CANCER.

TABLE No. 38.

Mortality from Cancer, with rates to estimated Population and to Total Mortality from 1884 *to* 1893, *inclusive.*

YEARS.	Deaths.	Death-rates per 10,000 of estimated population.	Ratio to total mortality per 1,000.
1884	213	5.93	34.39
1885	212	5.85	34.19
1886	206	5.64	32.06
1887	218	5.92	33.65
1888	203	5.47	29.62
1889	213	5.70	31.81
1890	276	7.33	37.45
1891	213	5.61	30.32
1892	235	6.14	29.41
1893	283	7.34	30.67

Table No. 38 gives the mortality from cancer from 1884 to 1893 inclusive, with ratios to the total mortality and to the estimated population. This table is striking in the uniformity of the mortality from this disease from year to year.

DIPHTHERIA.

TABLE No. 39.

Mortality from Diphtheria from 1884 to 1893, inclusive, by ages.

YEARS.	Under 1.	1 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Unknown.	Total.
1884.....	8	39	34	17	4	2	....	1	3	....	....	1	1	110
1885.....	10	32	22	5	3	4	....	1	1	....	....	..	..	78
1886.....	9	53	58	22	7	3	1	1	2	....	....	..	..	156
1887.....	7	74	51	20	6	9	4	2	1	1	1	..	1	177
1888.....	6	43	36	7	4	2	1	1	2	1	....	..	..	103
1889.....	7	86	68	18	13	10	3	3	....	1	....	..	1	210
1890.....	6	64	45	26	10	3	4	3	....	....	....	1	2	164
1891.....	5	74	48	17	7	2	4	....	....	1	....	..	2	160
1892.....	9	54	37	14	5	6	2	2	....	2	....	..	3	134
1893.....	6	23	19	9	1	3	1	1	....	....	....	..	..	63

Table No. 39 shows the mortality from diphtheria by age periods from 1884 to 1893 inclusive. It is gratifying to be able to record the fact that in the year 1893 the death-rate from this disease was lower than for any year heretofore reported. The number of deaths fell off more than one half as compared with the previous year. It will also be observed that there has been a steady diminution in the mortality from diphtheria in New Hampshire since 1889. It is not unreasonable to suppose that this may be in a measure, if not largely, due to the increased activity of local boards of health in carrying out isolation and disinfection.

CROUP.

TABLE No. 40.

Mortality from Croup from 1884 *to* 1893, *inclusive, by Ages.*

YEARS.	Under 1.	1 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Unknown.	Total.
1884.....	8	35	6	....	....	....	....	....	....	....	....	....	..	49
1885.....	20	41	9	....	....	1	2	....	1	....	....	....	..	74
1886.....	13	40	10	1	....	....	....	....	....	....	....	....	..	64
1887.....	26	48	7	2	....	....	....	....	....	....	1	....	..	84
1888.....	16	67	9	....	....	....	1	....	....	....	1	....	..	94
1889.....	11	65	11	1	....	....	....	....	....	....	....	....	..	88
1890.....	16	41	6	1	....	....	....	....	....	....	....	....	..	64
1891.....	11	32	10	2	....	....	....	....	....	....	....	..	1	56
1892.....	6	32	5	1	1	....	....	....	....	....	....	....	..	45
1893.....	8	16	10	2	..	....	....	....	....	....	....	....	..	36

Table No. 40 shows the mortality from croup from 1884 to 1893 inclusive, by age periods. This table corresponds in its ratios very closely to the corresponding table (No. 39) relating to diphtheria. It will be seen that, like diphtheria, there has been a constant diminution in the mortality from this disease since 1888. There is no especial reason why croup and diphtheria should be any longer separated in statistical tables, inasmuch as membranous croup and diphtheria are now deemed by the best authorities to be the same disease.

TABLE No. 41.

Mortality from Croup and Diphtheria from 1884 *to* 1893, *inclusive.*

YEARS.	Deaths.			Percentages of deaths to deaths from all causes.			Death-rates per 10,000.		
	Croup.	Diphtheria.	Total.	Croup.	Diphtheria.	Total.	Croup.	Diphtheria.	Total.
1884.....	49	110	159	.79	1.77	2.56	1.36	3.06	4.42
1885.....	74	78	152	1.19	1.25	2.44	2.04	2 15	4.19
1886.....	64	156	220	.99	2.41	3.40	1.75	4.27	6.02
1887.....	84	177	261	1.29	2.73	4.02	2.28	4.81	7.09
1888.....	94	103	197	1.37	1.50	2.87	2.53	2.77	5.30
1889.....	88	210	298	1.31	3.13	4.44	2.35	5.61	7.96
1890.....	64	164	228	.86	2.21	3.08	1.69	4.32	6.02
1891.....	56	160	216	.79	2.20	2.10	1.48	4.22	5.69
1892.....	45	134	179	.56	1.69	2.25	1.18	3.50	4.68
1893.....	36	63	99	.47	.82	1.29	.93	1.63	2.57
Total	654	1,355	2,009	.....	.....	.....	.....	.....	.....
Average .	65	135	201	.96	1.97	2.84	1.76	3.63	5.39

In table No. 41 croup and diphtheria are combined for the purpose of comparison. The number of deaths, percentages of deaths to deaths from all causes, and the death-rate to each 10,000 living persons from 1884 to 1893 inclusive, is given.

TYPHOID FEVER.

TABLE No. 42.

Mortality from Typhoid Fever from 1884 *to* 1893, *inclusive.*

YEARS.	Deaths.	Percentages of deaths to deaths from all diseases.	Death-rates per 10,000 living (estimated population).
1884	137	2.21	3.81
1885	136	2.19	3.75
1886	194	3.01	5.31
1887	134	2.06	3.64
1888	150	2.18	4.04
1889	161	2.40	4.30
1890	143	1.94	3.79
1891	170	2.42	4.48
1892	109	1.36	2.85
1893	121	1.58	3.14
Total	1,455	.....	.....
Average	145	2.13	3.91

Table No. 42 exhibits the mortality from typhoid fever from 1884 to 1893 inclusive. It will be seen for the latter year that the total number of deaths from this disease was 121, a slight increase over the number reported for the previous year, but lower than the average for the past ten years. The death-rate for the years given is also calculated in percentages.

TABLE No. 43.

Mortality from Typhoid Fever from 1884 *to* 1893 *inclusive, by Ages.*

YEARS.	Under 1.	1 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Unknown.	Total.
1884...	5	10	7	11	21	34	12	8	7	8	8	3	3	137
1885...	2	7	7	11	20	34	14	8	7	10	11	3	2	136
1886...	2	6	15	12	33	51	16	12	15	14	16	2	....	194
1887...	2	6	1	16	22	41	17	8	7	6	5	2	1	134
1888...	3	13	4	11	26	39	12	8	8	9	8	3	6	150
1889...	4	5	9	14	26	50	13	14	10	5	6	4	1	161
1890...	1	3	10	11	24	33	18	14	10	7	7	3	2	143
1891...	1	3	14	12	27	52	17	15	8	9	8	3	1	170
1892...	1	6	4	10	17	24	18	8	5	6	3	4	3	109
1893...	1	8	3	9	23	29	22	10	5	5	3	1	2	121

Table No. 43 shows the mortality from typhoid fever by age periods from 1884 to 1893, inclusive.

KIDNEY DISEASES.

TABLE No. 44.

Mortality from Bright's Disease, Nephritis, and other Kidney Diseases, and from Dropsy, with Ratio to Total Mortality, from 1884 *to* 1893, *inclusive.*

YEARS.	Total mortality from all causes.	Deaths from Bright's disease, nephritis, and other kidney diseases.	Ratio to total mortality per 1,000.	Deaths from dropsy.	Ratio to total mortality per 1,000.	Totals.	Ratio to total mortality per 1,000.
1884.....	6,194	140	22.60	80	12.91	220	35.51
1885.....	6,201	157	25.32	90	14.51	247	39.83
1886.....	6,426	143	22.25	83	12.92	226	35.17
1887.....	6,479	163	25.16	79	12.19	242	37.35
1888.....	6,854	154	22.47	75	10.94	229	33.41
1889.....	6,696	200	29.87	62	9.26	262	39.13
1890.....	7,368	201	27.28	53	7.19	254	34.47
1891.....	7,310	219	29.96	41	5.61	260	35.57
1892.....	7,988	222	27.99	43	5.38	265	33.17
1893.....	7,663	194	25.32	49	6.39	243	31.71

Table No. 44 shows the mortality from kidney diseases from 1884 to 1893, inclusive, together with ratios to the total mortality per 1,000. It will be seen by this table that the death-rate from kidney diseases for 1893 was a little less than that of the previous year and lower than has been returned since 1888, and the percentage to the total mortality a little lower than has heretofore been recorded.

SCARLET FEVER.

TABLE No. 45.

Mortality from Scarlatina from 1884 *to* 1893, *inclusive.*

YEARS.	Deaths.	Percentage of deaths to deaths from all causes.	Death-rates per 10,000 living population.*
1884	52	.83	1.44
1885	53	.85	1.46
1886	21	.32	.57
1887	26	.40	.70
1888	34	.49	.91
1889	18	.26	.48
1890	16	.21	.42
1891	13	.18	.34
1892	27	.33	.71
1893	52	.67	1.35
Total	312	.....	.....
Average	31	.45	.84

* Population estimated for all but census years.

Table No. 45 shows the number of deaths from scarlet fever for the past ten years. It will be seen that for several years there was a steady diminution in the mortality from this disease down to and including 1891, since which time the mortality has increased, and largely during the past year.

MEASLES.

TABLE No. 46.

Mortality from Measles from 1884 *to* 1893, *inclusive,*

YEARS.	Deaths.	Percentage of deaths to deaths from all causes.	Death-rate per 10,000 living population.*
1884	3	.04	.08
1885	45	.72	1.24
1886	18	.28	.49
1887	39	.60	1.06
1888	55	.80	1.48
1889	16	.23	.42
1890	9	.12	.23
1891	19	.26	.50
1892	24	.30	.62
1893	32	.41	.83
Total	260	.....	.....
Average	26	.38	.69

* Population estimated for all but census years.

Table No. 46 shows the mortality from measles for the ten years included in the table. The number of deaths returned from this disease in 1893 was 32, an increase over the last four years, and greater than has been returned since 1888.

TABLE 47.

Mortality from Measles from 1884 *to* 1893, *inclusive, by Ages.*

YEARS.	Under 1.	1 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Unknown.	Total.
1884...	1	1	....	....	1	....	....	....	....	....	....	....	....	3
1885...	12	26	5	1	1	....	....	....	....	....	....	....	....	45
1886...	5	13	....	....	....	....	....	....	....	....	....	....	....	18
1887...	19	10	2	1	3	....	2	1	....	1	....	....	....	39
1888...	14	20	6	3	2	2	5	1	1	....	....	1	....	55
1889...	2	6	1	....	2	2	1	....	1	....	....	....	1	16
1890...	5	4	....	....	....	....	....	....	....	....	....	....	....	9
1891...	5	6	2	....	2	....	1	1	....	1	....	....	1	19
1892...	7	11	....	1	1	3	....	....	1	....	....	....	....	24
1893...	9	14	3	2	1	1	1	....	....	....	1	....	....	32

Table No. 47 gives the mortality from measles for the ten years included by age periods. It will be seen by this table that this is a disease chiefly of early life. It is also demonstrated by this table that the disease is of too great importance to be ignored, so far as restrictive measures are concerned, by local boards of health and the public.

AN OUTBREAK OF SMALL-POX.

On the evening of April 20, 1895, the following telegram was received:

NEWPORT, N. H.

IRVING A. WATSON, M. D.:

A case of small-pox in town. Come immediately. Answer.
(Signed) D. M. CURRIER.

On Monday, April 22, the secretary of the board took the first train for Newport, and there met the local board of health. The board reported that on April 20 a Mr. Bartlett, who was living in a small house adjacent to the residence of a Mr. Cain, came to the office of the board and reported that in his opinion Mr. Cain was ill with small-pox. Drs. Currier and Darling, of the board of health, taking with them as counsel Dr. Swett, an old and experienced practitioner of medicine, visited Mr. Cain, and the case was pronounced to be unmistakably small-pox in the pustular stage. The patient was being treated by his own son, Dr. J. L. Cain, who had pronounced the case to be measles, and who up to that time had not reported it as small-pox.

Upon the return of the board from the case (which was about a mile out of the village of Newport), the telegram above quoted was sent to the office of the State Board of Health.

The secretary of the board, after learning the above facts, proceeded with Drs. Currier, Darling, and Swett to the residence of Mr. Cain, and examined the case, which was found to be in the pustular stage, fully developed, and of a very severe type.

Between the discovery of the case by the local board of health on Saturday and the visit of the secretary of the State Board of Health on Monday, the local board had made careful investigation as to

where the disease came from, and arrived at the conclusion that it was brought to Mr. Cain's house by a Mr. Bartlett, who had recently come from Chicago, and who had, some two or three weeks before, some eruptions which were regarded as chicken-pox. It seems that Bartlett came to the Sugar River House, Newport, February 25, directly from Chicago, and that about the 4th or 5th of March the proprietor of the above mentioned house noticed an eruption upon the face and hands of Mr. Bartlett, and ordered him to leave the house, which he did on the evening of March 6, going directly to the little house owned by Mr. Cain, and only a few feet distant from the latter's residence. It was therefore evident that Mr. Bartlett had communicated the disease to Mr. Cain. Mr. Bartlett had with him his two sons, who had a very mild type of varioloid. A quarantine was placed upon the infected premises.

On the 26th day of April, 1895, Mr. Lovering of Croydon called at the office of the State Board of Health, as a representative of the selectmen of that town, to notify the board that small-pox had appeared in Croydon; that it had appeared in three families, to wit: Charles Rowell's, Charles Davis's, and William W. Partridge's.

The secretary of the board proceeded to Croydon and investigated the outbreak, learning the following facts: That Mrs. Rowell went to Mr. Cain's house at Newport, on the 23d day of March, and there did general housework for seven days. In the meantime her son, fifteen years of age, visited her, and remained with her at Mr. Cain's over night. Mrs. Rowell and her son then went home to Croydon, and on the 8th day of April, Mrs. Rowell was taken ill, and about the same time her son showed indications of an eruptive disease. These cases were seen by a physician and pronounced to be measles.

Mrs. Charles Davis, a neighbor, living within one fourth of a mile, or thereabouts, of the said Rowells, and having three children, thought it would be a good idea for them to have this disease; so, taking one of her daughters, she visited the Rowells, and contracted small-pox. She came down with the disease on the 19th day of April, and died April 25.

A man by the name of Howard staid over night at Rowell's, contracted the disease, and went to another part of the town to work for Mr. Partridge, above mentioned, and came down with the disease about the same time that it appeared in the Davis family.

The disease was not recognized as small-pox until about the time of the death of Mrs. Davis. As soon as the nature of the disease was known, all persons who were exposed, and many others, were vaccinated.

It will be seen that a clear line of infection was established from the first case (Bartlett) to Cain's, from Cain's to Rowell's, from Rowell's to Davis's, and from Davis's to Partridge's.

On the 28th day of April the following telegram was received from Claremont:

DR. IRVING A. WATSON, *Secretary State Board of Health*:
There are four cases of small-pox in town.
(Signed) E. F. HOUGHTON,
Chairman Board of Health.

The secretary proceeded to Claremont to investigate the outbreak there, and at the office of the local board of health was given the facts to date substantially as follows:

One Ambrose Barron was at work in Newport, and boarded at the Sugar River House, at which place it will be remembered Bartlett, the first case, was boarding. Barron remained at this house until March 19, when he left for Claremont. This was thirteen days after Bartlett left the Sugar River House, and Barron must have been coming down with the disease at the time he left, for three days later, March 22, he consulted Dr. Theriault of Claremont, who reported the case to the board of health as measles. Barron's family consisted of self, wife, and child, fourteen months old. He lived in an upper tenement on River street. On the 1st of April, Barron moved to an upper tenement in a house on the corner of Elm and Front streets.

On April 13, the physician above named reported two cases of measles in a family by the name of Forcier, who lived in the lower tenement of the house on River street from which Barron moved. On April 27 three more cases were reported from the same family, as measles. On April 27, the diagnosis was changed to small-pox.

It will be seen by these dates that small-pox existed in the town of Claremont something like thirty-seven days before its presence was known to the health authorities. Many relatives of the persons who were infected with the disease visited them, so that from these sources alone there were many exposures. In addition to this, without any precaution whatever against carrying the disease,

Barron had gone to work in a shoe shop. It was also found that a party had been held at one of the houses in which there was small-pox. All these conditions had taken place before the presence of the disease was known to the authorities.

The secretary of the State Board of Health held a conference with the local board of Claremont, also with the board of education, and the board of selectmen. It was determined to take the most prompt and effective measures possible. To that end, the town decided to erect, immediately, a hospital, about a mile from the village, to which should be conveyed all the small-pox cases. The situation was so grave that, upon application, the governor and council authorized the State Board of Health to act under the provisions of the law of 1893, which gave the State Board of Health full authority to carry out such measures as might be deemed best.

The town had a hospital ample for over thirty patients ready for occupancy in less than a week. In the meantime a most efficient quarantine was maintained over the infected houses by the local board of health.

Under the provisions of the law referred to, Dr. George Cook of Concord was appointed a medical inspector of this Board, and ordered to proceed to Claremont to take charge of the work under the instructions given by the State Board of Health and to coöperate with the local board in stamping out the disease. Dr. Cook most faithfully and conscientiously performed the duties assigned him, from May 4 to June 8, at which time private affairs compelled him to resign. Dr. E. F. Houghton of Claremont was appointed to fill the position made vacant by the resignation of Dr. Cook.

It is perhaps unnecessary to say that the management of this outbreak, considering the large number of exposures that had already taken place, was no easy matter. In addition to caring for the patients, a daily inspection of a large number of persons was maintained in order to discover promptly the appearance of the diease among those that might have been exposed to it. Inasmuch as measles were prevailing at the same time, most careful judgment in diagnosing was required.

In a final report to this board, Dr. Houghton says:

"There have been twenty-six cases of small-pox in Claremont, as follows: Eleven cases of varioloid, two cases discrete small-pox, one case semi-confluent, and twelve cases of confluent.

"Twenty-four cases recovered, and two died.

"The cases were from fourteen families in thirteen houses, as follows: Forcier family six, Noley four, Chartier three, Barron two, Charron two, and nine families one each. The first case, Ambrose Barron, was taken sick March 19, the last case May 26.

"It was first known to the board of health that there was small-pox in town April 27, at which time there was, or had been, thirteen cases in five families named above, as follows: Forcier six, Barron two, Charron two, Chartier two, and Noley one.

"These five houses were immediately quarantined and guarded. The patients were moved to the small-pox hospital May 6, at which time six cases had recovered and one had died. Nineteen cases have been taken to the small-pox hospital, of which eighteen have recovered and one has died."

On May 6 the secretary of this board was requested to go to Sunapee to examine a case supposed to be small-pox. The request was immediately complied with, and a case of varioloid was found in the person of A. D. Noyes, who, on April 21, had called upon the Rowell family in Croydon, remaining in the house about one hour, and supposing at that time that the family were infected with measles. Mr. Noyes was promptly isolated at an old farm house a mile or so out of the village of Sunapee. He was not confined to his bed and speedily recovered.

The total number of persons infected in this outbreak was thirty-eight. Notwithstanding the disease had existed for more than a month before it was discovered, it was completely controlled and stamped out in nine weeks, which fact alone is the highest commendation that could be given to the executive ability of the persons connected with its management—chiefly Drs. Cook and Houghton, supported at every point and in every detail by the local and state authorities.

It is probable that a more connected and detailed account of this outbreak will appear in the next report of this board, as this record is hastily written just as this report is leaving the printer's hands. It is a pleasure to announce that there is not at this time (July 1, 1895) a case of small-pox in New Hampshire.

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